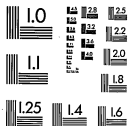




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Thomas A Edison Papers

A SELECTIVE MICROFILM EDITION

PART IV
(1899-1910)

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1999

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Thomas A. Edison Papers
at
Rutgers, The State University
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18 June 1981

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**West Orange Laboratory Records
Experimental Expense Ledger (1912-1916)**

This subsidiary ledger covers the period March 1908-July 1916, although most of the entries are from 1912-1916. It consists of accounts, arranged alphabetically, for various experiments at the laboratory, along with accounts for Glenmont. Entries for experimental expense accounts include the project numbers assigned in laboratory record books N-01-03-15 and N-10-07-26. The totals for these accounts were posted monthly to General Ledger #9 under the heading, "Experimental Accounts." There is an alphabetical index, which also includes the account numbers in Experimental Expense Ledger (1908-1912). The front cover is stamped "Experiment Ledger No. 9 Thomas A. Edison." A tag attached to the spine is inscribed "Experiment Ledger #9 Thos A. Edison from 1908/1916." The pages are unnumbered. Approximately 600 pages have been used.

Sheet No.

Name

Address

Trilene Plant Construction Equipment
19870

July 31	George J. J. J.	56	10,000.00	Oct 31	McDonalds Inc. Inc.	10,000.00	10,000.00
		41	3,250.00			10,000.00	10,000.00
		42	6,750.00			10,000.00	10,000.00
		43	2,100.00			10,000.00	10,000.00
		44	3,100.00			10,000.00	10,000.00
		45	1,400.00			10,000.00	10,000.00
		46	1,500.00			10,000.00	10,000.00
		47	1,200.00			10,000.00	10,000.00
		48	1,200.00			10,000.00	10,000.00
		49	1,200.00			10,000.00	10,000.00
		50	1,200.00			10,000.00	10,000.00
		51	1,200.00			10,000.00	10,000.00
		52	1,200.00			10,000.00	10,000.00
		53	1,200.00			10,000.00	10,000.00
		54	1,200.00			10,000.00	10,000.00
Aug 31	Oct 31	55	1,200.00	Nov 30	19870	1,200.00	1,200.00
		56	1,200.00			1,200.00	1,200.00
		57	1,200.00			1,200.00	1,200.00
		58	1,200.00			1,200.00	1,200.00
		59	1,200.00			1,200.00	1,200.00
		60	1,200.00			1,200.00	1,200.00
		61	1,200.00			1,200.00	1,200.00
		62	1,200.00			1,200.00	1,200.00
		63	1,200.00			1,200.00	1,200.00
		64	1,200.00			1,200.00	1,200.00
		65	1,200.00			1,200.00	1,200.00
		66	1,200.00			1,200.00	1,200.00
		67	1,200.00			1,200.00	1,200.00
		68	1,200.00			1,200.00	1,200.00
		69	1,200.00			1,200.00	1,200.00
Dec 31	19870	70	1,200.00	19870	19870	1,200.00	1,200.00
		71	1,200.00			1,200.00	1,200.00
		72	1,200.00			1,200.00	1,200.00
		73	1,200.00			1,200.00	1,200.00
		74	1,200.00			1,200.00	1,200.00
		75	1,200.00			1,200.00	1,200.00
		76	1,200.00			1,200.00	1,200.00
		77	1,200.00			1,200.00	1,200.00
		78	1,200.00			1,200.00	1,200.00
		79	1,200.00			1,200.00	1,200.00
		80	1,200.00			1,200.00	1,200.00
		81	1,200.00			1,200.00	1,200.00
		82	1,200.00			1,200.00	1,200.00
		83	1,200.00			1,200.00	1,200.00
		84	1,200.00			1,200.00	1,200.00

Sheet No. _____

Name _____
Address _____Inland Plant, Construction & Equipment
1890

Dec 31	Brought Forward	187	15166	13	Jan 31	Brought Forward	187	15166	13
"	"	140	15026	8	"	"	140	15026	8
"	"	246	15272	24	"	"	246	15272	24
Jan 31	"	29	15291	28	"	"	29	15291	28
"	"	139	15430	67	"	"	139	15430	67
"	"	188	15618	155	"	"	188	15618	155

Sheet No. 11

Name _____
Address _____

Analysis of Various Material for C.D.B. # 2131

1910	Jan 31	To Voucher	115	27	Jan 31	By Cash	1721	10377
"	"	"	116	6900	Feb 28	"	1800	4370
"	"	"	117	3450	Mar 31	"	1886	3222
"	"	"	89	14750	Apr 30	"	2009	2533
"	"	"	91	14750	May 31	"	2083	2741
"	"	"	102	6000	June 30	"	2268	3171
"	"	"	104	3000	July 31	"	2387	3409
"	"	"	116	1725	Aug 31	"	2549	3664
"	"	"	117	1863	Sept 30	"	2702	3935
"	"	"	118	1863	Oct 31	"	2853	4220
"	"	"	117	1458	Nov 30	"	3017	4521
"	"	"	118	2911	Dec 31	"	3173	4838
"	"	"	91	5720	Jan 31	"	3321	5170
"	"	"	92	2625	Feb 28	"	3428	5518
"	"	"	89	6416	Mar 31	"	3594	5877
"	"	"	90	3208	Apr 30	"	3758	6255
"	"	"	97	5832	May 31	"	3927	6647
"	"	"	98	2916	June 30	"	4122	7059
"	"	"	97	4084	July 31	"	4347	7493
"	"	"	98	2044	Aug 31	"	4495	7948
"	"	"	93	4083	Sept 30	"	4731	8429
"	"	"	94	2042	Oct 31	"	4886	8935
"	"	"	126	2800	Nov 30	"	5022	9457
"	"	"	128	5600	Dec 31	"	5158	10005
"	"	"	117	1167	Jan 31	"	5326	10567
"	"	"	117	7333	Feb 29	"	5465	11132
"	"	"	91	3499	"	"	"	11711
"	"	"	92	"	"	"	"	"
"	"	"	102	1753	"	"	"	"
"	"	"	103	1751	"	"	"	"
"	"	"	67	3501	"	"	"	"
"	"	"	116	67	"	"	"	"
"	"	"	117	38	"	"	"	"
"	"	"	118	7061	"	"	"	"
"	"	"	118	4531	"	"	"	"
"	"	"	113	2334	"	"	"	"
"	"	"	114	4668	"	"	"	"
"	"	"	115	8167	"	"	"	"
"	"	"	116	4084	"	"	"	"
"	"	"	117	4667	"	"	"	"
"	"	"	119	2039	"	"	"	"
"	"	"	113	8723	"	"	"	"
"	"	"	119	4667	"	"	"	"
"	"	"	120	23494	"	"	"	"
"	"	"	121	11747	"	"	"	"
"	"	"	128	15916	"	"	"	"
"	"	"	109	11928	"	"	"	"
"	"	"	110	158	"	"	"	"
"	"	"	112	18746	"	"	"	"
"	"	"	113	28373	"	"	"	"
"	"	"	117	7689	"	"	"	"
"	"	"	118	2854	"	"	"	"
"	"	"	120	63428	"	"	"	"
"	"	"	128	18627	"	"	"	"
"	"	"	144	5125	"	"	"	"

Sheet No. 11

Name
Address

analysis of Various Materials for E. S. B. Co. 30221

Sheet No. 29

Name
Address

analysis

#3025-

1912	1912	1912	1912
Mar 30 <i>Bortfounding</i>	2958.97	Mar 30 <i>Bortfounding</i>	2958.97
Apr 30 <i>20 Vmcher</i>	127	Apr 30 <i>20 Vmcher</i>	127
May 31 " "	140	May 31 " "	140
June 30 " "	145	June 30 " "	145
July 31 " "	142	July 31 " "	142
Aug 31 " "	129	Aug 31 " "	129
Sept 30 " "	121	Sept 30 " "	121
Oct 31 " "	127	Oct 31 " "	127
Nov 30 " "	126	Nov 30 " "	126
Dec 31 " "	155	Dec 31 " "	155
Jan 31 " "	155	Jan 31 " "	155
Feb 28 " "	126	Feb 28 " "	126
	157.94		157.94

1913	1913	1913	1913
Mar 31 <i>20 Vmcher</i>	129	Mar 31 <i>20 Vmcher</i>	129
Apr 30 " "	129	Apr 30 " "	129
May 31 " "	129	May 31 " "	129
June 30 " "	129	June 30 " "	129
July 31 " "	116	July 31 " "	116
Aug 31 " "	109	Aug 31 " "	109
Sept 30 " "	127	Sept 30 " "	127
Oct 31 " "	126	Oct 31 " "	126
Nov 30 " "	126	Nov 30 " "	126
Dec 31 " "	156	Dec 31 " "	156
Jan 31 " "	127	Jan 31 " "	127
Feb 28 " "	134	Feb 28 " "	134
Mar 31 " "	156	Mar 31 " "	156
Apr 30 " "	116	Apr 30 " "	116
May 31 " "	115	May 31 " "	115
June 30 " "	106	June 30 " "	106
July 31 " "	106	July 31 " "	106
Aug 31 " "	90	Aug 31 " "	90
Sept 30 " "	95	Sept 30 " "	95
Oct 31 " "	115	Oct 31 " "	115
Nov 30 " "	109	Nov 30 " "	109
Dec 31 " "	156	Dec 31 " "	156
Jan 31 " "	135	Jan 31 " "	135
Feb 27 " "	127	Feb 27 " "	127
Mar 31 " "	171	Mar 31 " "	171
Apr 29 " "	126	Apr 29 " "	126

1912	1912	1912	1912
June 27 <i>20 Vmcher</i>	145	June 27 <i>20 Vmcher</i>	145
July 31 " "	129	July 31 " "	129
Aug 30 " "	121	Aug 30 " "	121
Sept 31 " "	129	Sept 31 " "	129
Oct 31 " "	120	Oct 31 " "	120
Nov 31 " "	126	Nov 31 " "	126
Dec 31 " "	156	Dec 31 " "	156
Jan 31 " "	127	Jan 31 " "	127
Feb 28 " "	135	Feb 28 " "	135
Mar 31 " "	106	Mar 31 " "	106
Apr 30 " "	116	Apr 30 " "	116
May 31 " "	115	May 31 " "	115
June 30 " "	106	June 30 " "	106
July 31 " "	135	July 31 " "	135
Aug 31 " "	95	Aug 31 " "	95
Sept 31 " "	95	Sept 31 " "	95
Oct 31 " "	177	Oct 31 " "	177
	157.94		157.94

1913	1913	1913	1913
Mar 31 <i>20 Vmcher</i>	120	Mar 31 <i>20 Vmcher</i>	120
Apr 30 " "	145	Apr 30 " "	145
May 31 " "	123	May 31 " "	123
June 30 " "	129	June 30 " "	129
July 31 " "	116	July 31 " "	116
Aug 31 " "	109	Aug 31 " "	109
Sept 30 " "	127	Sept 30 " "	127
Oct 31 " "	126	Oct 31 " "	126
Nov 30 " "	156	Nov 30 " "	156
Dec 31 " "	127	Dec 31 " "	127
Jan 31 " "	135	Jan 31 " "	135
Feb 28 " "	106	Feb 28 " "	106
Mar 31 " "	116	Mar 31 " "	116
Apr 30 " "	115	Apr 30 " "	115
May 31 " "	106	May 31 " "	106
June 30 " "	135	June 30 " "	135
July 31 " "	95	July 31 " "	95
Aug 31 " "	95	Aug 31 " "	95
Sept 31 " "	177	Sept 31 " "	177
	157.94		157.94

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Leahurst, Ark.

24/10/32

Mar 31 Lumber 117.

1931

1931

Sheet No. _____

Name _____

Address _____

Sheet No. 50Name _____
Address _____

E. L. Aiken Labor & Material for

1908	1908	1908	1908
apl 30 To Voucher 86	1.43	apl 30 By L&M Invoice 119	1.43
May 31 " " 80	1.43	May 31 " " " 201	1.43
June 30 " " 79	1.43	June 30 " " " 266	1.43
July 31 " " 80	1.43	July 31 " " " 327	1.43
Aug 31 " " 56	1.43	Aug 31 " " " 391	1.43
Sept 30 " " 96	1.43	Sept 30 " " " 468	1.43
Oct 30 " " 104	1.43	Oct 31 " " " 549	1.43
Nov 30 " " 90	1.43	Nov 30 " " " 570	1.43
Dec 31 " " 79	1.43	Dec 31 " " " 672	1.43
Jan 30 " " 109	1.43	Jan 30 " " " 787	1.43
Feb 27 " " 99	1.43	Feb 27 " " " 852	1.43
Mar 31 " " 91	1.43	Mar 31 " " " 918	1.43
apl 30 " " 104	1.43	apl 30 " " " 992	1.43
May 31 " " 111	1.43	May 31 " " " 1095	1.43
June 30 " " 84	1.43	June 30 " " " 1212	1.43
July 31 " " 108	1.43	July 31 " " " 1322	1.43
Aug 31 " " 108	1.43	Aug 31 " " " 1425	1.43
Sept 30 " " 113	1.43	Sept 30 " " " 1481	1.43
Oct 30 " " 104	1.43	Oct 30 " " " 1571	1.43
Nov 30 " " 102	1.43	Nov 30 " " " 1669	1.43
Dec 31 " " 133	1.43	Dec 31 " " " 1838	1.43
Jan 28 " " 70	1.43	Jan 28 " " " 1932	1.43
Mar 31 " " 103	1.43	Mar 31 " " " 1995	1.43
apl 30 " " 118	1.43	apl 30 " " " 2152	1.43
May 31 " " 119	1.43	May 31 " " " 2601	1.43
			2601

J. W. Aylerworth Labor & Material for

1908	1908	1908	1908
May 31 To Voucher 80	42	May 31 By L&M Invoice 200	42
Aug 30 " " 56	42	Aug 31 " " " 390	42
Sept 30 " " 96	42	Sept 30 " " " 467	42
Oct 31 " " 104	42	Oct 31 " " " 570	42
Nov 30 " " 90	42	Nov 30 " " " 569	42
Jan 30 " " 109	42	Jan 30 " " " 786	42
Feb 27 " " 79	42	Feb 27 " " " 853	42
Mar 31 " " 111	42	Mar 31 " " " 1076	42
apl 30 " " 84	42	apl 30 " " " 1155	42
May 31 " " 108	42	May 31 " " " 1241	42
June 30 " " 113	42	June 30 " " " 1332	42
July 30 " " 104	42	July 30 " " " 1404	42
Aug 30 " " 104	42	Aug 30 " " " 1452	42
Nov 30 " " 102	42	Nov 30 " " " 1570	42
Dec 31 " " 133	42	Dec 31 " " " 1670	42
Jan 31 " " 115	42	Jan 31 " " " 1766	42
Feb 28 " " 70	42	Feb 28 " " " 1837	42
Mar 31 " " 119	42	Mar 31 " " " 2102	42
apl 30 " " 90	42	apl 30 " " " 2359	42
July 31 " " 88	42	July 31 " " " 2409	42
Aug 31 " " 77	42	Aug 31 " " " 2409	42
Sept 30 " " 90	42	Sept 30 " " " 2409	42
Oct 30 " " 77	42	Oct 30 " " " 2409	42
Nov 30 " " 78	42	Nov 30 " " " 2409	42
Dec 31 " " 100	42	Dec 31 " " " 2409	42
			2409

Sheet No. 51

Name

A. W. Almqvist Labor & Mat'l for

Address

1908			1908		
June 30 To Vouchers	79	176	June 30 By L&M Inv	247	176
Sept 30 " " "	41	1348	Sept 30 " " "	1403	3848
" " " " "	100	677	Nov 30 " " "	1573	4781
" " " " "	113	1822	Dec 31 " " "	2114	4781
Nov 30 " " "	102	4781	Dec 31 " " "	3748	4781
Dec 31 " " "	112	1636	Jan 29 " " "	5515	4781
Mar 31 " " "	116	22	Mar 30 " " "	5857	4781
July 29 " " "	124	1425	June 29 " " "	6118	4781
Mar 30 " " "	127	200			
June 29 " " "	71	4781			
1908		1908			
Dec 31 Lumber	160	3200	Dec 31 L & M Inv	1099	3200
Jan 29 Lumber	119	2400	Jan 30 Vouchers	95	2400
July 31 Lumber	132	280	July 31 L&M Inv	1119	280

Adams Express Co Labor & Mat'l for

1908		2	8
Sept 31 To Vouchers	88	25	
" " " "	96	155	
" " " "	100	149 1/2	
		155 1/2	
		(Paid)	
		-	
</			

Cutter Pattern

#3348

Apr 30 By L&M Inv 960

May 31 " " " 7454

Sheet No.

Name

Address

Automatic Sewing Machine for M. P. Olson

#3300

1913			1913		
Nov 30 To Lumber	116	845	Nov 30 By F&M Inv	3257	1214
Dec 31 "	117	369	Dec 31 "	330	1214
" "	118	500	Jan 31 " "	1507	2014
" "	119	430			
" "	120	350			
1914					
Jan 31 "	127	3396			
		2084			

Lumber & Constructing 3 Cops

July 29	Lumber	176	1706	July 29	Lumber	1706	1706
Nov 31	"	119	1501	Nov 31	"	1107	1501
Apr 30	"	48	19	Apr 29	"	1107	19

Sheet No.

Name _____

Address _____

Aniline Plant - Construction & Equipment. #3870

1 (P) 2017-0000, 210 WINDY ST, NEWARK, N.

Date	Location	Time	Wind	Temp	Bar	Humidity	Clouds	Remarks
Mar 31	Sanchez	3	108	Mar 31	104	104	104	104
"	"	97	887	Mar 31	104	104	104	104
"	"	130	150	Mar 31	104	104	104	104
"	"	11	150	Mar 31	104	104	104	104
"	"	13	150	Mar 31	104	104	104	104
"	"	23	150	Mar 31	104	104	104	104
"	"	26	150	Mar 31	104	104	104	104
"	"	36	150	Mar 31	104	104	104	104
"	"	38	150	Mar 31	104	104	104	104
"	"	41	150	Mar 31	104	104	104	104
"	"	70	150	Mar 31	104	104	104	104
"	"	84	150	Mar 31	104	104	104	104
"	"	93	150	Mar 31	104	104	104	104
"	"	94	150	Mar 31	104	104	104	104
"	"	100	150	Mar 31	104	104	104	104
"	"	102	150	Mar 31	104	104	104	104
"	"	104	150	Mar 31	104	104	104	104
"	"	106	150	Mar 31	104	104	104	104
"	"	108	150	Mar 31	104	104	104	104
"	"	110	150	Mar 31	104	104	104	104
"	"	112	150	Mar 31	104	104	104	104
"	"	114	150	Mar 31	104	104	104	104
"	"	116	150	Mar 31	104	104	104	104
"	"	118	150	Mar 31	104	104	104	104
"	"	120	150	Mar 31	104	104	104	104
"	"	122	150	Mar 31	104	104	104	104
"	"	124	150	Mar 31	104	104	104	104
"	"	126	150	Mar 31	104	104	104	104
"	"	128	150	Mar 31	104	104	104	104
"	"	130	150	Mar 31	104	104	104	104
"	"	132	150	Mar 31	104	104	104	104
"	"	134	150	Mar 31	104	104	104	104
"	"	136	150	Mar 31	104	104	104	104
"	"	138	150	Mar 31	104	104	104	104
"	"	140	150	Mar 31	104	104	104	104
"	"	142	150	Mar 31	104	104	104	104
"	"	144	150	Mar 31	104	104	104	104
"	"	146	150	Mar 31	104	104	104	104
"	"	148	150	Mar 31	104	104	104	104
"	"	150	150	Mar 31	104	104	104	104
"	"	152	150	Mar 31	104	104	104	104
"	"	154	150	Mar 31	104	104	104	104
"	"	156	150	Mar 31	104	104	104	104
"	"	158	150	Mar 31	104	104	104	104
"	"	160	150	Mar 31	104	104	104	104
"	"	162	150	Mar 31	104	104	104	104
"	"	164	150	Mar 31	104	104	104	104
"	"	166	150	Mar 31	104	104	104	104
"	"	168	150					

Sheet No. _____

Name
Address

Alter Hot Test Table
#3759

— R. G. —

Oct 31									
Nov 30	Trucker	115	5126	Oct 31	E. S. B. Co	Nov 30	9217	5126	
	"	105	779	Nov 30	"	"	9500	831	
	"	109	52						

Alter Tallying 8798									
Dec 31	Trucker	107	838	Dec 31	E. S. B. Co	Jan 1	9649	638	

Unsealing Box Shovel									
Feb 25	Trucker	1107	6928	Feb 25	E. S. B. Co	Mar 1	9733	694	

Sheet No. _____

Name _____

Address _____

Alfred Patterson
E. 3000

1916
1915
 Sept 30 Voucher 200 210 Sept 30 E. B. Co. Dr 100 210

Anchor Bolt
E. 1000

1916
 Dec 31 Voucher 200 210 Dec 31 E. B. Co. Dr 100 210

J. H. Schureck
E. 1000

1916
 Jan 31 Voucher 112 220 Jan 31 J. H. Schureck Dr 100 220

Sheet No. _____

Name _____

Address _____

Alfred Patterson
E. 3000

1916
 Mar 31 Voucher 119 129 Mar 31 E. B. Co. Dr 100 129
 Apr 30 " 119 129 Apr 30 " " " 119 129

Alfred Patterson
E. 1000

1916
 May 31 Voucher 125 135 May 31 E. B. Co. Dr 100 135

Resistance desired by following Dept. 5-2-20

1916
 June 30 Voucher 105 115 June 30 E. B. Co. Dr 100 115
 July 31 " 105 115 July 31 " " " 115 115

Sheet No. _____

Name _____

Address _____

Amide Phenol Plant J. W. Evers

July 31, 1934 70 6/30/34 31 6/1 11/33 6/30

Outline for J. W. E.

July 31, 1934 125 6/30/34 31 6/30/34 31 11/33 2/28

Bachman R. A. } Brown, Studio L & M, 104
 Labor & Material for } 1. Biggs L. E. L & M 105
 Building 1-act of } Building Mach 109
 Buick Roll Complete } 2. Macdonald & Co 3105
 without Jack Shaft # 1986 } 3. Macdonald & Co 3105
 Bradshaw J. H. } 4. Macdonald & Co 3105
 Labor & Material for } 5. Macdonald & Co 3105
 Build 3 sets Roll } 6. Macdonald & Co 3105
 for Pocket Table Strip 1955 } 7. Macdonald & Co 3105
 Building Metal } 8. Macdonald & Co 3105
 Plating Apparatus # 1986 } 9. Macdonald & Co 3105
 Barnes A. S. } 10. Macdonald & Co 3105
 Labor & Material for } 11. Macdonald & Co 3105
 Buehler W. J. Jr. } 12. Macdonald & Co 3105
 Boring out } 13. Macdonald & Co 3105
 Solid Record } 14. Macdonald & Co 3105
 Bradley P. (L & M) } 15. Macdonald & Co 3105
 Barber Stanley } 16. Macdonald & Co 3105
 Beach R. H. } 17. Macdonald & Co 3105
 Bergman D. L. M. } 18. Macdonald & Co 3105
 Business Photo. } 19. Macdonald & Co 3105
 Experiment } 20. Macdonald & Co 3105
 Brass Handles } 21. Macdonald & Co 3105
 Battery Bores } 22. Macdonald & Co 3105
 Business Photo } 23. Macdonald & Co 3105
 New Design } 24. Macdonald & Co 3105
 Business Shaving Mach } 25. Macdonald & Co 3105
 New Design } 26. Macdonald & Co 3105
 Banner for W. H. } 27. Macdonald & Co 3105
 L & M } 28. Macdonald & Co 3105
 Battery Compartment } 29. Macdonald & Co 3105
 Airproof } 30. Macdonald & Co 3105
 Core out Molds } 31. Macdonald & Co 3105
 in motor } 32. Macdonald & Co 3105
 Banding 4 Pieces } 33. Macdonald & Co 3105
 Pearl Mining } 34. Macdonald & Co 3105
 Brass Beam Appar } 35. Macdonald & Co 3105
 Blow Wax Chips } 36. Macdonald & Co 3105
 Bird Cage sticks } 37. Macdonald & Co 3105
 Building for } 38. Macdonald & Co 3105
 Chromating Work } 39. Macdonald & Co 3105
 Banding Justice } 40. Macdonald & Co 3105
 Blacksmith Shop } 41. Macdonald & Co 3105
 Braking Machine } 42. Macdonald & Co 3105
 Bliss D. M. L & M } 43. Macdonald & Co 3105
 Bancroft } 44. Macdonald & Co 3105
 Bone W. A. L & M } 45. Macdonald & Co 3105
 Boards } 46. Macdonald & Co 3105
 Bronze Bushings } 47. Macdonald & Co 3105
 Bushings } 48. Macdonald & Co 3105
 Butlet } 49. Macdonald & Co 3105

Sheet No. 1

Name

Address

R. A. Bachman Labor & Material for

FOR THE YEAR ENDING

1908

Mar 31 To Voucher

3.	700
27	30
64	25
69	440
71	127
3	280
39	1457
65	600
76	45
84	620
86	25
34	645
62	800
80	30
81	208
55	107
77	82
79	41
22	657
78	120
80	357
53	727
56	371
62	71
82	1760
96	317
78	570
96	30
99	58
104	98
70	1150
90	11
99	120
104	120
91	1217
43	1264
52	60
77	25
104	1274
4	100
74	900
77	257
88	1445
23	364
45	287
97	172
104	147
110	148
78	148
118	148
63	1419
87	147
88	147
59	420
2012	306

Le M. Aug 2012

1908

Mar 31 By L.M. Invoice

68	755
71	73
115	28
151	11
199	43
265	173
326	26
372	65
470	75
551	80
572	20
668	165
759	170
920	218
993	25
1156	24
1574	23
1671	20
1717	20
1923	20
1976	20
2174	20
2211	20
2356	20
74	20
2511	20

Voucher

L.M. Aug 2511

Sheet No.

Name
AddressBengal Recovery Plant, Johnston
3521

Month	Number	Amount	Month	Number	Amount
March	35	176.00	April	27	177.00
"	39	179.00	"	28	186.00
"	43	182.00	"		
"	50	231.90	"		
"	62	390.03	"		
"	67	337.00	"		
"	68	1503.00	"		
"	70	177.00	"		
"	70	180.00	"		
"	91	23.63	"		
"	96	1.08	"		
"	97	2.01	"		
"	101	520.00	"		
"	111	322.00	"		
"	117	493.49	"		
"	120	43.88	"		
"	125	350.34	"		
"	126	145.01	"		
"	130	17.53	"		
"	134	170.00	"		
"	171	645.61	"		
"	23	38.00	"		
"	61	255.44	"		
"	69	4.01	"		
"	70	28.48	"		
"	73	6.00	"		
"	94	14.41	"		
"	227	45.90	"		
"	228	150.00	"		
"	229	696.16	"		
"	230	183.68	"		
"	231	22178.17	"		
"	232	16.73	"		
"	233	22.00	"		
"	234	27.00	"		
"	235	89.88	"		
"	236	184.30	"		
"	238	54.40	"		
"	239	5.00	"		
"	240	552.28	"		
"	241	543.60	"		
"	242	575.10	"		
"	243	71.27	"		
"	244	244.00	"		
"	245	107.76	"		
"	252	81.80	"		
"	9	557.00	"		
"	30	547.61	"		
"	49	261.01	"		
"	95	500.00	"		
"	116	230.00	"		
"	117	43.18	"		
"	135	66.87	"		

Sheet No.

Name
AddressBengal Recovery Plant, Johnston
3521

Month	Number	Amount	Month	Number	Amount
May	31	126.00	June	30	187.00
"		11.00	"	31	167.00
"		16.00	"	31	167.00
"		17.00	"	31	167.00
"		18.00	"	31	167.00
"		19.00	"	31	167.00
"		20.00	"	31	167.00
"		21.00	"	31	167.00
"		22.00	"	31	167.00
"		23.00	"	31	167.00
"		24.00	"	31	167.00
"		25.00	"	31	167.00
"		26.00	"	31	167.00
"		27.00	"	31	167.00
"		28.00	"	31	167.00
"		29.00	"	31	167.00
"		30.00	"	31	167.00
"		31.00	"	31	167.00
"		32.00	"	31	167.00
"		33.00	"	31	167.00
"		34.00	"	31	167.00
"		35.00	"	31	167.00
"		36.00	"	31	167.00
"		37.00	"	31	167.00
"		38.00	"	31	167.00
"		39.00	"	31	167.00
"		40.00	"	31	167.00
"		41.00	"	31	167.00
"		42.00	"	31	167.00
"		43.00	"	31	167.00
"		44.00	"	31	167.00
"		45.00	"	31	167.00
"		46.00	"	31	167.00
"		47.00	"	31	167.00
"		48.00	"	31	167.00
"		49.00	"	31	167.00
"		50.00	"	31	167.00
"		51.00	"	31	167.00
"		52.00	"	31	167.00
"		53.00	"	31	167.00
"		54.00	"	31	167.00
"		55.00	"	31	167.00
"		56.00	"	31	167.00
"		57.00	"	31	167.00
"		58.00	"	31	167.00
"		59.00	"	31	167.00
"		60.00	"	31	167.00
"		61.00	"	31	167.00
"		62.00	"	31	167.00
"		63.00	"	31	167.00
"		64.00	"	31	167.00
"		65.00	"	31	167.00
"		66.00	"	31	167.00
"		67.00	"	31	167.00
"		68.00	"	31	167.00
"		69.00	"	31	167.00
"		70.00	"	31	167.00
"		71.00	"	31	167.00
"		72.00	"	31	167.00
"		73.00	"	31	167.00
"		74.00	"	31	167.00
"		75.00	"	31	167.00
"		76.00	"	31	167.00
"		77.00	"	31	167.00
"		78.00	"	31	167.00
"		79.00	"	31	167.00
"		80.00	"	31	167.00
"		81.00	"	31	167.00
"		82.00	"	31	167.00
"		83.00	"	31	167.00
"		84.00	"	31	167.00
"		85.00	"	31	167.00
"		86.00	"	31	167.00
"		87.00	"	31	167.00
"		88.00	"	31	167.00
"		89.00	"	31	167.00
"		90.00	"	31	167.00
"		91.00	"	31	167.00
"		92.00	"	31	167.00
"		93.00	"	31	167.00
"		94.00	"	31	167.00
"		95.00	"	31	167.00
"		96.00	"	31	167.00
"		97.00	"	31	167.00
"		98.00	"	31	167.00
"		99.00	"	31	167.00
"		100.00	"	31	167.00

Sheet No. _____

Name _____
Address _____

Sheet No. _____

Name _____
Address _____

Benzol Recovery Blank Canada
#3847

1915

<i>July 31</i>	<i>Leuker</i>	<i>14</i>	<i>5455</i>
<i>Nov 31</i>	"	<i>150</i>	<i>300</i>
	"	<i>171</i>	<i>1443</i>
<i>Apr 30</i>	"	<i>70</i>	<i>500</i>
	"	<i>94</i>	<i>100</i>
<i>May 31</i>	"	<i>151</i>	<i>100</i>
<i>June 30</i>	"	<i>164</i>	<i>100</i>
<i>July 31</i>	"	<i>64</i>	<i>100</i>
	"	<i>124</i>	<i>100</i>
<i>Dec 31</i>	"	<i>113</i>	<i>100</i>

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A
B

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Boeing Sport Score
4169

1916

Apr 20 *Unbroken* 91
May 31 " 92
1 29
135

1916

51 Apr 29 *St. G. Inc. Comp. R. 11-1-16*
15 May 31 " " " 11-1-16
2180
2421
271

51
2720
271

16

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Build 55000 Loading Machinery
13351

1912		1913	
May 31 To Lumber	114	May 31 To Lumber	114
June 30 " "	179	June 30 " "	179
July 31 " "	17	July 31 " "	17
" " " "	73	" " " "	73
" " " "	179	" " " "	179
Aug 30 " "	71	Aug 30 " "	71
" " " "	116	" " " "	116
Sept 30 " "	101	Sept 30 " "	101
" " " "	119	" " " "	119
Oct 31 " "	35	Oct 31 " "	35
" " " "	171	" " " "	171
" " " "	177	" " " "	177
Nov 30 " "	17	Nov 30 " "	17
Dec 31 " "	17	Dec 31 " "	17

1913		1914	
May 31 To Lumber	114	May 31 To Lumber	114
" " " "	179	" " " "	179
" " " "	17	" " " "	17
" " " "	73	" " " "	73
" " " "	179	" " " "	179
Aug 30 " "	71	Aug 30 " "	71
" " " "	116	" " " "	116
Sept 30 " "	101	Sept 30 " "	101
" " " "	119	" " " "	119
Oct 31 " "	35	Oct 31 " "	35
" " " "	171	" " " "	171
" " " "	177	" " " "	177
Nov 30 " "	17	Nov 30 " "	17
Dec 31 " "	17	Dec 31 " "	17

Name _____
Address _____

Bird Cage Sticks #31428

1973

July 31	To Cash	129
Aug 31	" "	116

168 July 31. Ay. E. S. B. Co. Inv 7764
37 Aug 31. " " " " 7879

168
372

W. G. Bee! L & M

1913			
May 31	To	Wm. L. Lumber	116
June 30	"	"	116
June 30	"	"	106
July 30	"	"	152
July 30	"	"	119
Aug 31	"	"	143
Nov 31	"	"	119

31	Aug 31	By S. M. Linn	7939
96	Jan 30	"	8836
42	June 30	"	9025
50	Aug 30	"	9951
378	July 30	"	11308
17	Jan 31	"	10896
162	Mar 31	"	11118

34
96
142
50
373
42
168

Sheet No.

Name
Address

M. Bovey Fur Dressing & Dyeing Co.

110

Feb	28	Logan	1167
Nov	30	Dr. 1167	10566

225	July	28	B. L. & M. Low	9753
205	Nov	30	Donker	214

225

1915

Bottoms for 3-16" Cane
1915 3837

Mar 31 Voucher 171

2664	Mär 31	34 C. S. B. Co. Inc.	1900
------	--------	----------------------	------

366

1015

Bubble Pickers

Apr 30	Louche	1/5
	"	2.85

				1915	838812	
157	Apr 30	B. P. Thomson Inc	Incr	99	09	

420

Name _____
Address _____Bonding Line for Steam Lumber
1911

1911	Apr 30	Lumber	254	5761	Apr 30	Edmund S. B. Co. Inc.	9946	5761
	May 31	"	293	11100	May 31	"	10058	1440

1912	Apr 30	Lumber	254	5761	Apr 30	Edmund S. B. Co. Inc.	9946	5761
	May 31	"	293	11100	May 31	"	10058	1440

1912	Apr 30	Lumber	254	5761	Apr 30	Edmund S. B. Co. Inc.	9946	5761
	May 31	"	293	11100	May 31	"	10058	1440

Name _____
Address _____Blades for Sulphurating Process
1912

1912	Apr 30	Lumber	251	280	Apr 30	Edmund S. B. Co. Inc.	10147	280
	May 31	"	256	363	May 31	"	10258	363
	Aug 31	"	29	157	Aug 31	"	10358	157

1913	July 31	Lumber	25	2780	July 31	Edmund S. B. Co. Inc.	10251	2780
	Aug 31	"	109	4600	Aug 31	"	10330	2718
		"	66	2193				
		"	271	575				

1914	July 31	Lumber	50	576	July 31	Edmund S. B. Co. Inc.	10251	576
	Aug 31	"	193	50	Aug 31	"	10251	576
	Sept 30	"	256	252	Sept 30	"	10251	576
		"	129	129				

Sheet No. _____

Name _____

Address _____

Boys of
Hood

Oct 31	Voucher	16	370.00	July 29	Edwin Howard Minkley 11777	118730
		37	316.00			
		112	152			
		121	120			
Nov 30		177	241.11			
		74	1.00			
		121	116.13			
		127	31			
Dec 31		216	241.11			
Jan 01		37	251.11			
July 29		29	217.77			

1915

Dabcock & Wilson, Boston

Oct 31	Voucher	177	197.77	Apr 27	Edwin Howard Minkley 11777	118731
Nov 30		216	241.11			
Dec 31		226	116.13			

1916

Dabcock & Wilson, Boston

July 29	Voucher	76	300.00	July 29	Edwin Howard Minkley 11777	300.00
---------	---------	----	--------	---------	----------------------------	--------

Sheet No. _____

Name _____

Address _____

Mr. Boykin

May 31	Voucher	125	29.00	May 31	Edwin Howard Minkley 11777	29
--------	---------	-----	-------	--------	----------------------------	----

500 Gross Inventory Log # 11712

May 31	Voucher	125	191.00	May 31	Edwin Howard Minkley 11777	191
--------	---------	-----	--------	--------	----------------------------	-----

Receipts

Address

Name David Brooks Bearings & Transmission Gear Co. Inc. v. Worm Gear
Address 42511

4266

July 31	Crushed	7	11.31	July 31	Proc. Rem. Imp. S. 1117-4	3.515
		57	11.60			
		80	12.2			
		96	10			
		102	11.55			

Balance One Six Recording Machine Plates	42.85
--	-------

July 31	Tranche 132	170	July 31	MB for My R. 1st.	1176	176
---------	-------------	-----	---------	-------------------	------	-----

P. C. Brown

July 31	Voucher	132	513	July 31, 1971	11786	513
---------	---------	-----	-----	---------------	-------	-----

[illegible]

Sheet No. _____

Name
Address

Changelon 30 H.P. Moss Auto. #1978

Sept 30	Changelon	73	137.67	Dec 31	24.78	1978	1.00
"	"	74	73.9	Jan 31	Changelon	30.1	1.10
"	"	77	39.7				
"	"	80	49.8				
"	"	94	11.0				
Oct 30	"	109	374.57				
"	"	11	12.5				
"	"	35	10.14				
"	"	65	5.4				
"	"	75	1.65				
"	"	84	1.00				
"	"	80	5.5				
"	"	101	0.4				
Nov 30	"	127	57.86				
Dec 31	"	47	1.7				
Jan 31	"	47	1.263				
"	"	8	3.54				
"	"	89	3.50				
"	"	118	30.5				
"	"	125	30				
Feb 28	"	127	64.55				
Mar 31	"	134	74.28				
June 30	"	106	7.58				
		106	7.58				
			7.58				
1975							
Jan 31	London	30.1	7.58	Dec 31	1978	32.2	7.50

Sheet No. 32

Name
Address

Charging Batteries #2759

1971			
Nov 30	London	117	1.50
Dec 30	"	124	9.00
			24.00

Sheet No.

Name

Address

Sheet No.

Name

Address

Copy of Cash Photograph

\$315.3

12.12

1912		1913			
Dec. 31	To General Expense	15.46	Aug. 30 Balance from photo 119	79.6	
			Sept. 30 By W. H. Adams 22.5	1.50	
			Oct. 31 22.9	1.85	
			Dec. 31 25.30	1.50	
		15.46		15.46	
1913	Dec. 31 To Expense	15.46	Jan. 31 By W. H. Adams 21.7	2.00	
		21.00	Feb. 28 " " " 96.25	1.00	
			Apr. 30 " " " 96.00	1.50	
			May 31 " " " 98.82	1.00	
			June 30 " " " 99.24	2.50	
			July 31 " " " 100.65	2.00	
			Aug. 31 " " " 101.93	1.00	
			Sept. 30 " " " 102.83	2.00	
			Oct. 31 " " " 103.50	2.00	
			Nov. 30 " " " 104.17	2.00	
			Dec. 31 " " " 106.61	1.50	
				106.61	1.50
		21.00			21.00
			May 31 " " " 113.12	1.50	
			June 31 " " " 116.23	1.50	
				118.77	1.50

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Copy of Cash Photograph
1915-16

1915-16

Dec 31 To General Expense 300

1894
1546 Aug 30 Balance forward 12.1 796

Sept 31 " 9249 150

Oct 31 " 9340 500

Dec 31 " 9531 500

Dec 31 To Expense

1546 1915
2100 Jan 31 Balance forward 915 300

Feb 28 " " 926 100

Mar 31 " " 941 50

Apr 30 " " 953 100

May 31 " " 968 200

June 30 " " 1006 600

July 31 " " 10134 200

Aug 31 " " 1024 100

Sept 30 " " 1056 200

Oct 31 " " 1067 50

Nov 30 " " 1087 100

12100
May 31 " " 1122 100

July 31 " " 1154 100

" " 1163 50

Address

Address

Save All Working connections with Recovering Plant, Machinery, etc.

Jan 31

Donnerstag

11/11/11

[illegible]

4

7.

284



24.

+

100

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	

2201514

Name ..
Address ..

Is over All Work in connection with Recovering Clays, Machinery etc

1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																											
July 25	Koumber	146	124	May 31	124	Apr 30	124	Mar 31	124	Feb 28	124	Jan 31	124	Dec 31	124	Nov 30	124	Oct 31	124	Sept 30	124	Aug 31	124	July 31	124	June 30	124	May 31	124	April 30	124	March 31	124	February 28	124	January 31	124	December 31	124	November 30	124	October 31	124	September 30	124	August 31	124	July 31	124	June 30	124	May 31	124	April 30	124	March 31	124	February 28	124	January 31	124	December 31	124	November 30	124	October 31	124	September 30	124	August 31	124	July 31	124	June 30	124	May 31	124	April 30	124	March 31	124	February 28	124	January 31	124	December 31	124	November 30	124	October 31	124	September 30	124	August 31	124	July 31	124	June 30	124	May 31	124	April 30	124	March 31	124	February 28	124	January 31	124	December 31	124	November 30	124	October 31	124	September 30	124	August 31	124	July 31	124	June 30	124	May 31	124	April 30	124	March 31	124	February 28	124	January 31	124	December 31	124	November 30	124	October 31	124	September 30	124	August 31	124	July 31	124	June 30	124	May 31	124	April 30	124	March 31	124	February 28	124	January 31	124	December 31	124	November 30	124	October 31	124	September 30	124	August 31	124	July 31	124	June 30	124	May 31	124	April 30	124	March 31	124	February 28	124	January 31	124	December 31	124	November 30	124	October 31	124	September 30	124	August 31	124	July 31	124	June 30	124	May 31	124	April 30	124	March 31	124	February 28	124	January 31	124	December 31	124	November 30	124	October 31	124	September 30	124	August 31	124	July 31	124	June 30	124	May 31	124	

Name _____
Address _____

Sever All Work connections with Securing Bank MacFinnery
#3986

May 31	Don't get beyond	2157.90	30	31	Don't get beyond	1161.15	30
June 30	Don't get beyond	1161.15	30	31	Don't get beyond	1161.15	30
		31	30	31	Don't get beyond	1161.15	30
		63	30	31	Don't get beyond	1161.15	30
July 31		107	185.15	31	Don't get beyond	27	18.01
		16	18.01	31	Don't get beyond	18.01	18.01
		46	18.01	31	Don't get beyond	18.01	18.01
		16	18.01	31	Don't get beyond	18.01	18.01
Aug 31		29	18.01	30	Don't get beyond	18.01	18.01
		80	18.01	30	Don't get beyond	18.01	18.01
		90	18.01	30	Don't get beyond	18.01	18.01
		97	18.01	30	Don't get beyond	18.01	18.01
Sept 30		221	18.01	30	Don't get beyond	18.01	18.01
		93	18.01	30	Don't get beyond	18.01	18.01
		103	18.01	30	Don't get beyond	18.01	18.01
		177	18.01	30	Don't get beyond	18.01	18.01
Oct 31		221	18.01	30	Don't get beyond	18.01	18.01
		31	18.01	30	Don't get beyond	18.01	18.01
		90	18.01	30	Don't get beyond	18.01	18.01
		174	18.01	30	Don't get beyond	18.01	18.01
Nov 30		215	18.01	30	Don't get beyond	18.01	18.01

Name _____
Address _____

Name ..
Address

Carbolic New Plant Silver Lake #3871

1-26
47

[illegible]

Sheet No.

Name

Address

Barbours New Clark, Silver Lake
13871

May	31	Barbours New Clark, Silver Lake	300
		13871	
	33	60.00	
	34	60.00	
	44	300.79	
	48	97.2795	
	49	111.69	
	50	111.60	
	51	57.113	
	52	60.00	
	53	7.32	
	54	2.00	
	55	50.00	
	56	50.00	
	57	31.16	
	58	60.00	
	59	111.60	
	60	10.9	
	61	32.215	
	62	17.00	
	63	5.75	
	64	127.116	
	65	232.705	
	66	70.00	
	67	12.17	
	68	30.00	
	69	57.27	
	70	111.60	
	71	20.00	
	72	1.00	
	73	1.00	
	74	1.00	
	75	1.00	
	76	1.00	
	77	1.00	
	78	1.00	
	79	1.00	
	80	1.00	
	81	1.00	
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	139	1.00	
	140	1.00	
	141	1.00	
	142	1.00	
	143	1.00	
	144	1.00	
	145	1.00	
	146	1.00	
	147	1.00	
	148	1.00	
	149	1.00	
	150	1.00	

Sheet No.

Name

Address

Barbours New Clark, Silver Lake
13871

May	31	Barbours New Clark, Silver Lake	300
		13871	
	149	111.60	
	150	111.60	
	151	111.60	
	152	111.60	
	153	111.60	
	154	111.60	
	155	111.60	
	156	111.60	
	157	111.60	
	158	111.60	
	159	111.60	
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	161	111.60	
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	166	111.60	
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	256	111.60	
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	290	111.60	
	291	111.60	
	292	111.60	
	293	111.60	
	294	111.60	
	295	111.60	
	296	111.60	
	297	111.60	
	298	111.60	
	299	111.60	
	300	111.60	

June 30

Sheet No.

Name

Address

Car to the New Plant, Silver Lake
1871

June 30	Brought Forward	July 31	Brought Forward
81	140.00	156	300.00
82	50.00	157	50.00
95	40.00	158	50.00
101	15.00	159	50.00
110	6.61	160	50.00
113	6.61	161	50.00
116	10.00	162	50.00
120	10.00	163	50.00
121	13.00	164	50.00
121	13.00	165	50.00
125	16.00	166	50.00
129	31.83	167	50.00
134	18.00	168	50.00
133	10.00	169	50.00
134	10.00	170	50.00
138	17.00	171	50.00
146	9.00	172	50.00
148	7.00	173	50.00
151	1.00	174	50.00
155	17.00	175	50.00
156	13.00	176	50.00
157	26.00	177	50.00
159	60.00	178	50.00
161	2.00	179	50.00
168	13.00	180	50.00
172	28.00	181	50.00
173	6.00	182	50.00
174	8.00	183	50.00
248	17.00	184	50.00
99	19.00	185	50.00
100	20.00	186	50.00
101	24.00	187	50.00
102	63.00	188	50.00
201	10.00	189	50.00
211	2.00	190	50.00
2	1.00	191	50.00
15	15.00	192	50.00
16	1.00	193	50.00
23	41.00	194	50.00
26	30.00	195	50.00
30	50.00	196	50.00
41	37.00	197	50.00
42	6.00	198	50.00
44	10.00	199	50.00
45	8.00	200	50.00
46	31.00	201	50.00
47	60.00	202	50.00
49	7.00	203	50.00
53	41.00	204	50.00
63	26.00	205	50.00
64	10.00	206	50.00
77	32.00	207	50.00
81	2.00	208	50.00

July 31

Sheet No.

Name

Address

Car to the New Plant, Silver Lake
1871

July 31	Brought Forward	July 31	Brought Forward
86	10.00	189	50.00
91	20.00	190	50.00
92	30.00	191	50.00
93	40.00	192	50.00
94	50.00	193	50.00
95	60.00	194	50.00
96	70.00	195	50.00
97	80.00	196	50.00
98	90.00	197	50.00
99	100.00	198	50.00
100	110.00	199	50.00
101	120.00	200	50.00
102	130.00	201	50.00
103	140.00	202	50.00
104	150.00	203	50.00
105	160.00	204	50.00
106	170.00	205	50.00
107	180.00	206	50.00
108	190.00	207	50.00
109	200.00	208	50.00
110	210.00	209	50.00
111	220.00	210	50.00
112	230.00	211	50.00
113	240.00	212	50.00
114	250.00	213	50.00
115	260.00	214	50.00
116	270.00	215	50.00
117	280.00	216	50.00
118	290.00	217	50.00
119	300.00	218	50.00
120	310.00	219	50.00
121	320.00	220	50.00
122	330.00	221	50.00
123	340.00	222	50.00
124	350.00	223	50.00
125	360.00	224	50.00
126	370.00	225	50.00
127	380.00	226	50.00
128	390.00	227	50.00
129	400.00	228	50.00
130	410.00	229	50.00
131	420.00	230	50.00
132	430.00	231	50.00
133	440.00	232	50.00
134	450.00	233	50.00
135	460.00	234	50.00
136	470.00	235	50.00
137	480.00	236	50.00
138	490.00	237	50.00
139	500.00	238	50.00
140	510.00	239	50.00
141	520.00	240	50.00
142	530.00	241	50.00
143	540.00	242	50.00
144	550.00	243	50.00
145	560.00	244	50.00
146	570.00	245	50.00
147	580.00	246	50.00
148	590.00	247	50.00
149	600.00	248	50.00
150	610.00	249	50.00
151	620.00	250	50.00
152	630.00	251	50.00
153	640.00	252	50.00
154	650.00	253	50.00
155	660.00	254	50.00
156	670.00	255	50.00
157	680.00	256	50.00
158	690.00	257	50.00
159	700.00	258	50.00
160	710.00	259	50.00
161	720.00	260	50.00
162	730.00	261	50.00
163	740.00	262	50.00
164	750.00	263	50.00
165	760.00	264	50.00
166	770.00	265	50.00
167	780.00	266	50.00
168	790.00	267	50.00
169	800.00	268	50.00
170	810.00	269	50.00
171	820.00	270	50.00
172	830.00	271	50.00

Sheet No. _____

Name
AddressBarbours New Plant, Silver Lake
1877

July 31	Brought Forward	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850
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Sheet No.

Name
Address

Carroll Newland

15871

Left 30 Days to Forward	15871	Left 30 Days to Forward	15871
Number	15871	Number	15871
5	100		
6	100		
7	2275		
8	2275		
9	2275		
10	2275		
11	2275		
12	2275		
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98	2275		
99	2275		
100	2275		

Sheet No.

Name
Address

Carroll Newland

15871

Left 30 Days to Forward	15871	Left 30 Days to Forward	15871
Number	15871	Number	15871
1	100		
2	100		
3	2275		
4	2275		
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99	2275		
100	2275		

Sheet No.

Name

Address

Carbolat New Blank

1891

Oct. 31	Number	
	119	447.36
	120	370.51
	121	168.13
	122	1409
	123	10600
	124	973
	125	84400
	126	20017
	127	109500
	128	16108
	129	15120
	130	1111
	131	373.87
	132	3856
	133	708.00
	134	884.56
	135	100
	136	106
	137	7000
	138	39.01
	139	708.57
	140	160029
	141	17897
	142	11111
	143	375.26
	144	3000
	145	10000
	146	20990
	147	2098
	148	20
	149	20000
	150	300.5
	151	88007
	152	89000
	153	30000
	154	16667
	155	777
	156	2707
	157	106
	158	232
	159	1550
	160	2200
	161	15787
	162	1540
	163	22890
	164	60
	165	17770
	166	300
	167	2000
	168	4640
	169	11920
	170	2070
	171	20150
	172	2070
	173	20150
	174	20150

200000
1000000
10000000

Sheet No.

Name

Address

Carbolat New Blank

1891

Nov. 30	Number	
	175	24910
	176	1861
	177	1260
	178	24640
	179	813
	180	107
	181	392
	182	322
	183	7200
	184	30070
	185	31011
	186	62759
	187	12071
	188	150
	189	7776
	190	2510
	191	66360
	192	70000
	193	1736
	194	21211
	195	100
	196	82309
	197	8970
	198	2400
	199	7951
	200	20071
	201	1900
	202	150
	203	819500
	204	9250
	205	30000
	206	21500
	207	17000
	208	200
	209	100
	210	12000
	211	19
	212	20071
	213	150000
	214	1200
	215	36
	216	24925
	217	22000
	218	1009
	219	2400
	220	2213
	221	1461
	222	30
	223	63
	224	15003
	225	20000
	226	1800
	227	2000
	228	2000

Dec. 31

Sheet No. _____

Name _____
Address _____Barbier, Charles
13141

161	639	Jan 31	Barbier 206	1000	1000
162	2000				
163	3397				
164	10479				
165	25000				
166	2000				
167	3739				
168	10000				
169	1170				
170	6750				
171	12000				
172	10000				
173	1000				
174	2700				
175	2100				
176	3000				
177	2000				
178	1000				
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249	1000				
250	1000				

Jan 31
Lumber

Sheet No. _____

Name _____
Address _____Barbier, Charles
13141

Jan 31	Lumber	110	1617	29	1073	51534
		180	36	1073	560	
		149	07	1073	560	
		148	11	1073	560	
		30	11	1073	560	
		33	13	1073	560	
		176	573	1073	560	
		70	70	1073	560	
		35	13	1073	560	
		70	2000	1073	560	
		113	33	1073	560	
		119	1073	560	560	

July 29

Mar 31

Sheet No. _____

Name
Address

Sheet No. _____

Name
Address

Lo Hangee on Cattinul \$2000 + 2501
10605

56

¹⁹¹⁵
Jan 31. Voucher 147.

¹⁹¹⁵
Jan 31. Cash on Hand 2000 + 2501

240.

¹⁹¹⁵
Lo Hangee on Cattinul \$2000 + 2501

¹⁹¹⁵
Feb 28. Voucher 147.

¹⁹¹⁵
Mar 31. " 171.

¹⁹¹⁵
Mar 31. Cash on Hand 2000 + 2501

240.

57

Sheet No. _____

Name _____
Address _____Barbours Road Plant, Prefabricated Plant
1916

1915		1916	
July 25	Timber	147	57.23
Mar 31	"	130	1.87
Apr 30	"	171	48.38
May 31	"	73	8.77
June 30	"	94	12.62
July 31	"	151	12.86
Aug 31	"	164	5.70
Sept 30	"	174	13.17
		174	1.10

1915		1916	
Mar 31	Timber	36	4.23
	"	130	1.76
	"	171	48.56
		Mar 31 By B.D. & Co. Inc. 9510	46.54

Sheet No. _____

Name _____
Address _____

Orange Station 1915

1915		1916	
Sept 30	Timber	500	307
		Oct 13 By B.D. & Co. Inc. 10250	307

1915		1916	
Oct 31	Timber	15	4.94
	"	74	9.31
	"	114	20
	"	34	23.00
	"	174	35.60
		Oct 31 Adams & Belmont 10440	12.45
		Nov 30 " "	44.55

Sheet No. _____

Name
Address

Charger Wood Hills Co to the same Hills
#3946

THE BANK OF AMERICA, N. Y. & C.		1914	
Oct 1	101.39	Oct 1	101.39
31	91	31	91
"	39	"	39
"	77	"	77
"	85	"	85
"	140	"	140
"	171	"	171
"	177	"	177
Nov 30	95	Nov 30	95
Dec 31	96	Dec 31	96
Mar 31	97	Mar 31	97
221 New York St. New York		221 New York St. New York	

Copper Foundry

[illegible]

Sheet No. _____

Name _____

Address _____

Washington, Nov. 11, 1864.

1971		1972	
Nov. 30. Lumber arr.	1971	Nov. 30. Edmundson's Hardware	1972

Lucille Barry Mosher

Date		Particulars	Dr.	Cr.	Balance
1875	31	Balance	218	1760	1542
1876	31	"	226	1875	1649
1877	31	"			1649
1878	31	"			1649
1879	31	"			1649
1880	31	"			1649
1881	31	"			1649
1882	31	"			1649
1883	31	"			1649
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1916	31	"			1649
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1918	31	"			1649
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1949	31	"			1649
1950	31	"			1649
1951	31	"			1649
1952	31	"			1649
1953	31	"			1649

Sheet No. _____

Name _____

Address _____

Carl Grove and his Progress in the United States

1911	July 21	London	122	1911	July 21	Chas. Mansel, B. 1716	1117
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Sheet No. _____

Name _____

Address _____

Cabinet Work and his Records in the at Home

18628

1911

Mar 31	London	66
"	"	79
"	"	89
"	"	99
"	"	106
Apr 30	"	26
"	"	57
"	"	116
May 31	"	102
"	"	103
"	"	115

1911

Mar 31	Chas. Mansel, B. 1716	1117
Apr 30	"	1126
May 31	"	1119

Conway's Progress in the United States

1911

May 31	London	68
"	"	115
June 30	"	106

10 May 31	Chas. Mansel, B. 1716	1117
205 June 30	"	1126

Exchange Gallery #2863

1911

June 30	London	106
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546 June 30	Chas. Mansel, B. 1716	1117
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Sheet No. _____

Name _____
Address _____Carpenter Work on line of River Co. of the Oregon
#3707

1914			1914				
July 31	Summer	60	July 31	25	Thom Co. of Oregon	91.6	42495
"	"	65	"	30	"	91.7	33620
"	"	88	"	30	"	92.1	1795
"	"	89	"	30	"	93.8	3070
"	"	126	"	31	"	179	1754
"	"	86	"	31	"	"	"
"	"	58	"	31	"	"	"
"	"	55	"	31	"	"	"
"	"	56	"	31	"	"	"
"	"	79	"	31	"	"	"
"	"	80	"	31	"	"	"
"	"	85	"	31	"	"	"
"	"	28	"	31	"	"	"
"	"	66	"	31	"	"	"
"	"	95	"	31	"	"	"
"	"	113	"	31	"	"	"
"	"	125	"	31	"	"	"

1914			1914				
Sept 31	Summer	157	Sept 31	25	Thom Co. of Oregon	95.1	177
"	"	10170	"	30	"	95.1	177
"	"	150	"	30	"	95.1	177
"	"	131	"	30	"	95.1	177

1915			1915				
Feb 28	Summer	116	Feb 28	25	Thom Co. of Oregon	97.4	48001
"	"	147	"	30	"	97.4	706
"	"	116	"	30	"	97.4	2664
"	"	171	"	30	"	97.4	1416
"	"	202	"	30	"	97.4	13122
"	"	48	"	30	"	97.4	252
"	"	50	"	30	"	97.4	750
"	"	293	"	30	"	97.4	750
"	"	251	"	30	"	97.4	750
"	"	256	"	30	"	97.4	750

Sheet No. _____

Name _____
Address _____Carroll-New Plant Liberty Lake
#3871

1915			1915				
Mar 31	Summer	96	Mar 31	25	Thom Co. of Oregon	97.4	48001
"	"	130	"	30	"	97.4	706
"	"	171	"	30	"	97.4	2664
"	"	23	"	30	"	97.4	1416
"	"	24	"	30	"	97.4	13122
"	"	36	"	30	"	97.4	252
"	"	38	"	30	"	97.4	750
"	"	44	"	30	"	97.4	750
"	"	69	"	30	"	97.4	750
"	"	70	"	30	"	97.4	750
"	"	93	"	30	"	97.4	750
"	"	94	"	30	"	97.4	750
"	"	96	"	30	"	97.4	750
"	"	97	"	30	"	97.4	750

1915			1915				
Mar 31	Summer	171	Mar 31	25	Thom Co. of Oregon	97.4	48001
"	"	751	"	30	"	97.4	706
"	"	751	"	30	"	97.4	2664
"	"	751	"	30	"	97.4	1416
"	"	751	"	30	"	97.4	13122
"	"	751	"	30	"	97.4	252
"	"	751	"	30	"	97.4	750
"	"	751	"	30	"	97.4	750
"	"	751	"	30	"	97.4	750
"	"	751	"	30	"	97.4	750

1915			1915				
Mar 31	Summer	171	Mar 31	25	Thom Co. of Oregon	97.4	48001
"	"	751	"	30	"	97.4	706
"	"	751	"	30	"	97.4	2664
"	"	751	"	30	"	97.4	1416
"	"	751	"	30	"	97.4	13122
"	"	751	"	30	"	97.4	252
"	"	751	"	30	"	97.4	750
"	"	751	"	30	"	97.4	750
"	"	751	"	30	"	97.4	750
"	"	751	"	30	"	97.4	750

Sheet No. _____

Name
Address

Cabinet Models. Parts of
#3866

1910		1911		1912	
Mar 31	Car	171	40.5	Mar 31	40.5
Apr 30	"	242	2071	Apr 30	2071
May 31	"	243	1167	May 31	1167
June 30	"	251	1252	June 30	1252
Jul 31	"	256	2034	Jul 31	2034
Aug 31	"	271	248	Aug 31	248
Sept 30	"	200	1373	Sept 30	1373
Oct 31	"	177	2049	Oct 31	2049

Sheet No. _____

Name
Address

Cabinet Celluloid Shipping Rooms
#3895

¹⁷⁹⁶							
Apr 3.	Lancker	1800	Novr	Apr 30 by Woburn	Bach 1791/3		26 or

1915

Central Service Corp.

1673	June 22	June 23	By Lt M. L. L.	1748	605
------	---------	---------	----------------	------	-----

1945

Copper Laps 443898

1910 Oct 31	Lunch "	75¢ 35	810 100	1910 Oct 31	By 18 Lumber "	9900 10499	810 100
----------------	------------	-----------	------------	----------------	-------------------	---------------	------------

low

Combination Die for Gas Trap Bottles

[illegible]

but

Cutter Blades 3902

May 31	Number	299	210	May 31	1912	2202	SRE Inc	Inv	10002	210
--------	--------	-----	-----	--------	------	------	---------	-----	-------	-----

Sheet No. _____

Name _____
Address _____Change Round Stills Into Running Still
1896

1895		1896		1897		1898	
Aug 31	Lumber	441	235	Aug 31	Lumber	10335	27325
		281	1000	Sept 30	"	10414	57214
		15	20475				
		51	22285				
		95	23235				
Sept 30		101	3010				
		116	23200				
		124	9420				
		127	163				
		137	108				
		146	486				
		157	21400				
		176	6673				
		182	8123				
		200	13050				
			13050				
	Refined 97						

1895		1896		1897		1898	
Aug 31	Lumber	221	175	Aug 31	Lumber	10791	178

1895		1896		1897		1898	
Aug 31	Lumber	221	5124	Aug 31	Lumber	10335	5124
Sept 30	"	127	949	Sept 30	"	10414	17061
	"	195	11	Oct 31	"	10509	30666
	"	200	16101	Nov 30	"	10615	35100
Oct 31	"	18	1970	Dec 31	"	10727	41264
	"	37	152				
	"	50	90				
	"	57	950				
	"	114	27539				
	"	177	10000				
Nov 30	"	57	40				
	"	76	443				
	"	212	36639				
	"	47	2124				
	"	265	05				
	"	226	45555				
	Refined 61		55555				

Sheet No. _____

Name _____
Address _____Leahurst, Kansas
1898

1895		1896		1897		1898	
Jan 31	Lumber	24	1000	Jan 31	Lumber	10335	178
Feb 29	"	39	20475	Feb 29	"	10414	37

1895		1896		1897		1898	
Jan 31	Lumber	122	16	Jan 31	Lumber	10557	911
Feb 29	"	145	5400	Feb 29	"	10771	11200
	"	126	1290				

1895		1896		1897		1898	
Jan 31	Lumber	145	210	Jan 31	Lumber	10557	210

Sheet No. _____

Name _____
Address _____Loc. Longford, Harper, Callow
Ire.

1916		1916	
Jan 31	11.0	Jan 31	11.0
Feb 29	11.0	Feb 29	11.0
Mar 31	11.0	Mar 31	11.0
Apr 30	11.0	Apr 30	11.0
May 31	11.0	May 31	11.0
Jun 30	11.0	Jun 30	11.0
Jul 31	11.0	Jul 31	11.0
Aug 31	11.0	Aug 31	11.0
Sep 30	11.0	Sep 30	11.0
Oct 31	11.0	Oct 31	11.0
Nov 30	11.0	Nov 30	11.0
Dec 31	11.0	Dec 31	11.0

Loc. Longford, Harper, Callow
Ire.

1916		1916	
Jan 31	11.0	Jan 31	11.0
Feb 29	11.0	Feb 29	11.0
Mar 31	11.0	Mar 31	11.0
Apr 30	11.0	Apr 30	11.0
May 31	11.0	May 31	11.0
Jun 30	11.0	Jun 30	11.0
Jul 31	11.0	Jul 31	11.0
Aug 31	11.0	Aug 31	11.0
Sep 30	11.0	Sep 30	11.0
Oct 31	11.0	Oct 31	11.0
Nov 30	11.0	Nov 30	11.0
Dec 31	11.0	Dec 31	11.0

Loc. Longford, Harper, Callow
Ire.

1916		1916	
Jan 31	11.0	Jan 31	11.0
Feb 29	11.0	Feb 29	11.0
Mar 31	11.0	Mar 31	11.0
Apr 30	11.0	Apr 30	11.0
May 31	11.0	May 31	11.0
Jun 30	11.0	Jun 30	11.0
Jul 31	11.0	Jul 31	11.0
Aug 31	11.0	Aug 31	11.0
Sep 30	11.0	Sep 30	11.0
Oct 31	11.0	Oct 31	11.0
Nov 30	11.0	Nov 30	11.0
Dec 31	11.0	Dec 31	11.0

Sheet No. _____

Name _____
Address _____Loc. Longford, Harper, Callow
Ire.

1916		1916	
Jan 31	11.0	Jan 31	11.0
Feb 29	11.0	Feb 29	11.0
Mar 31	11.0	Mar 31	11.0
Apr 30	11.0	Apr 30	11.0
May 31	11.0	May 31	11.0
Jun 30	11.0	Jun 30	11.0
Jul 31	11.0	Jul 31	11.0
Aug 31	11.0	Aug 31	11.0
Sep 30	11.0	Sep 30	11.0
Oct 31	11.0	Oct 31	11.0
Nov 30	11.0	Nov 30	11.0
Dec 31	11.0	Dec 31	11.0

Loc. Longford, Harper, Callow
Ire.

1916		1916	
Jan 31	11.0	Jan 31	11.0
Feb 29	11.0	Feb 29	11.0
Mar 31	11.0	Mar 31	11.0
Apr 30	11.0	Apr 30	11.0
May 31	11.0	May 31	11.0
Jun 30	11.0	Jun 30	11.0
Jul 31	11.0	Jul 31	11.0
Aug 31	11.0	Aug 31	11.0
Sep 30	11.0	Sep 30	11.0
Oct 31	11.0	Oct 31	11.0
Nov 30	11.0	Nov 30	11.0
Dec 31	11.0	Dec 31	11.0

Loc. Longford, Harper, Callow
Ire.

1916		1916	
Jan 31	11.0	Jan 31	11.0
Feb 29	11.0	Feb 29	11.0
Mar 31	11.0	Mar 31	11.0
Apr 30	11.0	Apr 30	11.0
May 31	11.0	May 31	11.0
Jun 30	11.0	Jun 30	11.0
Jul 31	11.0	Jul 31	11.0
Aug 31	11.0	Aug 31	11.0
Sep 30	11.0	Sep 30	11.0
Oct 31	11.0	Oct 31	11.0
Nov 30	11.0	Nov 30	11.0
Dec 31	11.0	Dec 31	11.0

Sheet No. 1

Name
Address

Drawings for Charges on 45 H.P. Motor No. 1977

FOR ENTER DRAWING, SEE INDEX OF DRAWINGS, P. 1

1905		1906	
<i>Nov. 1 To Ridge, R.S.</i>	<i>2.77</i>	<i>Oct. 25 By Snyder & Sons</i>	<i>5.1</i>
<i>Apr. 30 " Voucher</i>	<i>84</i>	<i>By J.A. Brown</i>	<i>2.20</i>
		<i>1905</i>	<i>1906</i>
		<i>34.17</i>	<i>59.48</i>
		<i>135.68</i>	<i>135.68</i>

Name
Address

Drawing for Model House for Moulton & 1769

1905				
Mar 1	To Ledger	2.55	42.45	
Mar 31	" Voucher	69	24.33	
"	"	71	61.90	
Apl 30	"	84	17.28	
May 31	"	81	21.46	
July	"	1	2.55	
"	"	33	42.4	
"	"	67	75	
"	"	77	30	
"	"	78	230.25	
Aug	"	16	80	
"	"	51	60	
"	"	55	230.41	
"	"	56	26	
Sept 30	"	47	3.87	
"	"	93	30	
"	"	95	265.40	
Oct 31	"	45	67.4	
"	"	77	635	
"	"	96	100	
"	"	103	195.26	
Nov 30	"	43	11.95	
"	"	84	25	
"	"	88	164.00	
"	"	90	30	
Dec 31	"	48	11.72	
"	"	92	30	
"	"	99	13.4	
Jan 30	"	100	180.82	
"	"	50	4.7	
"	"	88	610	
"	"	97	50	
"	"	109	177	
"	"	110	230.28	
Feb 27	"	98	106.46	
"	"	99	61.52	

Name
AddressDrawing Experimental Work for House #2
Lythorn & Small

1910				
Nov 30	To Voucher	128	7086.44	
Dec 31	"	23	7190.00	
"	"	53	32	
"	"	114	385	
"	"	116	20	
"	"	117	14900	
Jan 31	"	71	7438.17	
Feb 28	"	16	7610.98	
"	"	66	1089	
"	"	103	14400	
"	"	104	451	
Mar 31	"	116	7116.51	
"	"	117	118.14	
Apl 30	"	29	7115.68	
June 30	"	34	7115.68	
"	"	117	75	
"	"	118	167	
"	"	120	7115.17	

2915

Oct 31			5175.435				2774.978
Nov 30	Con. Lev	177	177.00	2100	30	16 Edmund Ave Lr.	10947
"	"	178	178.00	188	31	10947	10947
"	"	179	179.00	191		10947	10947
Dec 31	"	275	275.00	2100	31	10947	10947
"	"	276	276.00	2100	31	10947	10947
Jan 31	"	1	100.00	2100	31	10947	10947
"	"	35	35.00	2100	31	10947	10947
"	"	37	37.00	2100	31	10947	10947
"	"	39	39.00	2100	31	10947	10947
"	"	41	41.00	2100	31	10947	10947
"	"	118	118.00	2100	31	10947	10947
Feb 29	"	276	276.00	2100	31	10947	10947
"	"	37	37.00	2100	31	10947	10947
"	"	46	46.00	2100	31	10947	10947
"	"	47	47.00	2100	31	10947	10947
"	"	61	61.00	2100	31	10947	10947
"	"	87	87.00	2100	31	10947	10947
"	"	91	91.00	2100	31	10947	10947
"	"	107	107.00	2100	31	10947	10947
"	"	117	117.00	2100	31	10947	10947
"	"	176	176.00	2100	31	10947	10947

Sheet No.

Name _____
Address _____

Siamont Grinding Machines (Make 12)
1927

Dec. 31.	Tranche	176.	11631	Dec. 31. 80 Tranche Incr	1076.	11631
Jan. 31.	"	114	59	Jan. 31	10876.	15424
July 29.	"	148	15478	July 29.	10974	720
		176				

1916	Drainage	400	Expenditure	1916	1917
Mar 31	Drainage	119	Mar 31	Drainage	30.81
Apr 30	"	91	Apr 30	"	35.11

59

Sheet No.

Name

Address

Travellers' Identification for Election of Travelers' Union
1916

1916
Mar 31 *1916*
Apr 30 *1916*

1916
1916

L. L. Linn

1916
Apr 30 *1916*

1916
1916

Sheet No.

Name

Address

100 Lines
1916

1916
July 31 *1916* *125* *1916*
July 31 *1916* *125* *1916*

Sheet No. _____

Name _____

Address _____

Sheet No. 104

Name _____

Address _____

Discharge July 22 2004

1912	June 29 To voucher	145	1912	June 29 By Ed. W. G. Am. 6297	50
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N. C. Durand L & M.

1912	July 31 To voucher	142	1912	July 31 By L & M Am	645	77
	Aug 31 " "	129		Aug 31 " " "	6411	28
						105

W. H. Denwood L & M.

1912	June 22 To voucher	28	1912	June 22 By L & M Am	6297	162
Mar 31 To voucher	26	200	Mar 31 By L & M Am	7094	200	
June 30 " "	112	50	June 30 " " "	7613	822	
May 31 " "	125	32	May 31 " " "	8228	135	
Apr 30 " "	115	35	Apr 30 " " "	9455	315	
Mar 30 " "	109	312	Mar 30 " " "	9581	98	
Feb 31 " "	36	98	Apr 29 " " "	11293	113	
Jan 30 " "	91	13				

Sheet No. _____

Name _____
Address _____Design & Model for Oval Storage Battery Division Path Lead
31 112

1912	Jan 31	To Lumber	45	2750	1913	Jan 31	By Edward D. L. L. L.	27287
	"	"	150	21337		Feb 28	" " " "	21320
	July 28	"	1211	21320		"	" " " "	21320
				21320				21320
				21320				21320
	Mar 31	To Lumber	120	12000		Mar 31	By J. B. L. L. L.	12000

1913	May 31	To Lumber	112	112	1913	May 31	By L. M. L. L.	112
	July 28	"	116	116		July 28	" " " "	116

1913	June 30	To Lumber	100	100	1913	June 30	By E. B. L. L. L.	100
------	---------	-----------	-----	-----	------	---------	-------------------	-----

Sheet No. _____

Name _____
Address _____Design for Standard Type of Battery
31 112

1912	Sept 30	To Lumber	95	5605	1913	Sept 30	By Edward D. L. L. L.	5605
	Oct 31	"	111	7401		Oct 31	" " " "	7401

1912	Oct 31	To Lumber	111	1746	1913	Oct 31	By E. B. L. L. L.	1746
	Nov 30	"	109	1562		Nov 30	" " " "	1562

1913	Nov 30	To Lumber	21	638	1913	Nov 30	By E. B. L. L. L.	638
			109	575				575

Sheet No. _____

Name
Address

Lieb 13955

1915	May 31	Donker	171	7191	May 31	E. B. B. Co. Inc. 9997	7191
	Apr 30	"	87	394	Apr 30	"	9997
			452	603			

1915

Lieb 13956

Apr 30	Donker	74	708	Apr 30	E. B. B. Co. Inc. 9998	9100
	"	258	8396			

1915

Lieb 13957

May 31	Donker	118	208	May 31	E. B. B. Co. Inc. 10008	11851
	"	293	11640			

Sheet No. _____

Name
Address

Lieb 13916

1915	May 31	Donker	293	637	May 31	E. B. B. Co. Inc.	10058	437
	June 30	"	82	366	June 30	"	10101	7785
			111	120	July 31	"	10801	5722
			137	627				
			251	6250				
	July 31		256	522				

1915

Lieb 13917

June 30	Donker	62	356	June 30	E. B. B. Co. Inc.	10002	4778
	"	137	620	July 31	"	10201	281
		251	3766				
	July 31		256				

1915

Lieb 13954

July 31	Donker	46	137	July 31	E. B. B. Co. Inc.	10198	1161
	"	206	10299				

115

Sheet No. _____

Name
Address

Rine Riel #3978

Aug 31	Voucher	221	20	Aug 31	Edmundson Hotel	1128	20
--------	---------	-----	----	--------	-----------------	------	----

1915	Litch Hotel and Windsor Shade Breeze Hotel						
Oct 31	Voucher	177	210	Oct 31	Edmundson Hotel	1128	215

1915	Diamond Reef Shop Inc						
Nov 30	Voucher	188	212	Nov 30	L & M Inc	1121	212

116

Sheet No. _____

Name
Address

Drawing Board # 4139

Apr 30	Voucher	151	1916	Apr 30	R.R. Edmundson	1128	151
--------	---------	-----	------	--------	----------------	------	-----

1916	Baker Paper Co. & Paper Stationery Printing Works						
May 31	Voucher	135	2103	May 31	ECR Co.	1128	2103

1916	Bentley Baker Voucher Book # 4173						
May 31	Voucher	135	1764	May 31	PA E. Inc.	1128	1764

Sheet No.

Name
Address

Double Baker Vaulted Road
#4199

June 30 Voucher 76 70 June 30 P.C. Inc. 71 1175 1075
July 31 101 101 July 31 1165 1075
100 100 100 100

Drawings Con. Runway between Belge

June 30 Voucher 101 101 June 30 P.C. Inc. 108 108
100 100 100 100

Disc Mould Hydrolysis Rings

June 30 Voucher 101 101 June 30 P.C. Inc. 108 108
July 31 101 101 July 31 1165 1075
100 100 100 100

Experiment on -1- Experimental
Colored Photography 1913 Graphing Machine 2122 Experiments to cheapen 44
Experiments on -2- Electric Motor 26 Electrolytic Supply 2370
Universal Telegraphy 1914 Swines Photo 2145 Edison Charles L. M. 103
Experimental work on -3- Experimental work 27 Edison J. H. A. 291
Coloring Cement 1910 on Photography 2174 Experiment on Cells 2
Experiments on Elements -4- Electric Plating Copper 2156 Electric Controller 2
in- and out- of- lamps 1913 Experimental work 29 Equip. Hydro. Dept. 2
Experimental work on -5- on Kinescopes 2161 Experiments "Rees" 2
Special Dynamo 1914 Experimental work 30 Edison Theodore L. M. 2
Experimental research on -6- on Primary Batteries 2162 Electric Baggage Truck 2356
the Edison effect in Experiments on Flats 2154 Exhibit of Batteries 2174
in- and out- of- lamps 1913 Experiment 32 Galvanometer R. M. 104
Experiment on Radio -7- Charging Batteries 2192 Equatorial Motion Picture 2174
activity of Uranium 1919 Electric Motor 33 Electrical Apparatus 2157
Experiments with vacuum -8- 1/16-18 P. 2174 Light Lamp for Repair 2159
Experiments on Metals 1919 Edison Swines Photo 2174 Cooking for Chemical Analysis 2156
Experiments on -9- R. M. for 34 Experimental work on 100 Motor 2156
Fluorescent Sells for Experiment on Cells 2205 Experimental work on 100 Batteries 2156
New Sells 1914-1915 Delivery Wagon 35 Experimental work on 100 Batteries 2156
Experiments on -10- Extracting Machine 222 Experimental work on 100 Batteries 2156
Chalk Reproducer 1917 Experimental work 37 Experimental work on 100 Batteries 2156
Experiment - Making 11 Water Proof Mount 2225 of 100 Batteries 2156
Substitute for supply 1911 Extracting Mach for 38 Experimental work on 100 Batteries 2156
Edison Mas. Thos. W. 12 15 1/2" Disc Record 2223 Head of 100 2156
Labor Material for Emerson Chap 1 Experimental work on 100 Batteries 2156
Edison Mfg. Co. L. M. 101 Manganese for 100 Batteries 2156
Labor Material for 13 Expense to Business 101 Manganese for 100 Batteries 2156
Experimental 14 Photo. at 71, 72 101 Manganese for 100 Batteries 2156
Battery testing 15 Experimental 39 Experimental work on 100 Batteries 2156
Experiments on 101 Mould 222 Manganese for 100 Batteries 2156
Reproducer 1917 Erickson a 101 Manganese for 100 Batteries 2156
Edison Storage Battery Co. L. M. 101 Manganese for 100 Batteries 2156
Labor Material for 16 Experiment to Make 101 Manganese for 100 Batteries 2156
Edison Chemical Works All Insulating Compound 101 Manganese for 100 Batteries 2156
Labor Material for 17 Experiment on New Dept. 101 Manganese for 100 Batteries 2156
Edison Photo Mfg. 101 Manganese for 100 Batteries 2156
Labor Material for 18 Experiment on New Dept. 101 Manganese for 100 Batteries 2156
Experiment on 19 Experiment on New Dept. 101 Manganese for 100 Batteries 2156
Kinescope delay 1918 Experimental work on 100 Batteries 2156
Experiments on Amenity 20 Kinescope Photo 101 Manganese for 100 Batteries 2156
for Canyon Bell 21 Experimental work 101 Manganese for 100 Batteries 2156
Edison Photo Cement Co. 21 Diag. Photography 101 Manganese for 100 Batteries 2156
Experiments on Vacuum 22 Experimental work 101 Manganese for 100 Batteries 2156
Extracting Records 23 Musical Photography 101 Manganese for 100 Batteries 2156
by Vacuum Process 2016 Edison Inc. Shop A 101 Manganese for 100 Batteries 2156
Experiments on 24 L. M. 101 Manganese for 100 Batteries 2156
Synchronizing arrangement 2016 Experimental work 101 Manganese for 100 Batteries 2156
Edison Mfg. Machine L. M. for 100 Experimental work 101 Manganese for 100 Batteries 2156
Edison W. S. L. M. for 100 Experimental work 101 Manganese for 100 Batteries 2156

Experimental Work on dielectric 110

Experiment on dielectric 110

Experiment on dielectric 110

Experiment on dielectric 110

Experiment on dielectric 110

Experiment on dielectric 110

Experiment on dielectric 110

Experiment on dielectric 110

Experiment on dielectric 110

Experiment on dielectric 110

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Experiment on dielectric 110

Experiment on dielectric 110

Experiment on dielectric 110

Experiment on dielectric 110

Sheet No.

Name

Address

Mrs. H. A. Edison

1914		1915	
July 31	Brought Forward	July 31	Brought Forward
105	105	4715	4715
110	110	330	330
136	136	330	330
277	277	330	330
83	83	330	330
41	41	330	330
51	51	330	330
60	60	330	330
71	71	330	330
79	79	330	330
80	80	330	330
90	90	330	330
25	25	330	330
62	62	330	330
60	60	330	330
83	83	330	330
89	89	330	330
95	95	330	330
7	7	330	330
21	21	330	330
48	48	330	330
21	21	330	330
23	23	330	330
73	73	330	330
80	80	330	330
96	96	330	330
115	115	330	330
21	21	330	330
57	57	330	330
81	81	330	330
81	81	330	330
97	97	330	330
109	109	330	330
88	88	330	330
117	117	330	330
126	126	330	330
131	131	330	330
135	135	330	330
150	150	330	330
157	157	330	330
145	145	330	330
108	108	330	330
136	136	330	330
131	131	330	330
25	25	330	330
80	80	330	330
89	89	330	330
104	104	330	330
147	147	330	330
112	112	330	330
37	37	330	330
60	60	330	330

Sheet No. _____

Name
Address

Nashua, N. H. Edison L. M.

Month	Day	Number	Price	Time	Value
March 31		93	5.25	2 PM	93.50
"		113	18.00	"	100.66
"		170	61	"	106.66
"		171	15.25	"	121.91
April 30		21	15.25	"	137.16
"		21	15.25	"	152.41
"		68	45.00	"	197.41
"		78	75.00	"	272.41
May 31		25	12.43	"	284.84
"		3	3.00	"	287.84
"		48	5.70	"	293.54
"		50	42.63	"	336.17
"		131	3.01	"	339.18
"		181	13.51	"	352.69
June 30		29	12.43	"	365.12
"		67	203.05	"	568.17
"		63	14.95	"	583.12
"		153	70.00	"	653.12
"		151	26.00	"	679.12
"		152	10.00	"	689.12
"		153	27.70	"	716.82
July 31		25	15.17	"	731.99
"		47	8.83	"	740.82
"		86	24.20	"	765.02
"		107	24.50	"	789.52
"		108	70.38	"	859.90
Aug 31		26	17.25	"	877.15
"		27	12.53	"	889.68
"		29	9.18	"	898.86
"		33	8.00	"	906.86
"		36	39.00	"	945.86
"		98	3.00	"	948.86
"		121	64.25	"	1013.11
Sept 30		122	20.57	"	1033.68
"		124	21.95	"	1055.63
"		163	10.60	"	1066.23
"		175	51.35	"	1117.58
"		188	25.00	"	1142.58
"		197	9.00	"	1151.58
Oct 31		200	61.53	"	1213.11
"		31	6.00	"	1219.11
"		35	56.10	"	1275.21
"		37	7.30	"	1282.51
"		41	15.44	"	1297.95
"		144	37.40	"	1335.35
Nov 30		46	134.58	"	1469.93
"		48	2.00	"	1471.93
"		116	24.40	"	1496.33
"		179	16.40	"	1512.73
"		182	25.00	"	1537.73
"		212	164.60	"	1702.33

Sheet No. _____

Name
Address

Nashua, N. H. Edison L. M.

Month	Day	Number	Price	Time	Value
Nov 30		40	78.10	"	1577.43
Dec 31		41	150.00	"	1727.43
"		79	50	"	1777.43
"		110	74.00	"	1851.43
"		200	36.75	"	1888.18
Jan 31		226	170.00	"	2058.18
"		5	26.60	"	2084.78
"		57	31.00	"	2115.78
"		59	35.12	"	2150.90
"		50	2.28	"	2153.18
"		93	27.30	"	2180.48
"		94	7.80	"	2188.28
"		117	43.00	"	2231.28
"		116	11.81	"	2243.09
"		130	3.25	"	2246.34
"		148	10.00	"	2256.34
Feb 29		30	33.50	"	2289.84
"		37	11.65	"	2301.49
"		94	72.00	"	2373.49
"		126	157.75	"	2531.24
Mar 31		35	9.70	"	2540.94
"		80	43.00	"	2583.94
"		101	25.50	"	2609.44
"		111	73.40	"	2682.84
"		119	167.42	"	2850.26
Apr 30		36	20.00	"	2870.26
"		62	15.40	"	2885.66
"		87	15.80	"	2901.46
"		92	12.26	"	2913.72
"		118	57.63	"	2971.35
"		50	23.27	"	2994.62
"		56	50.40	"	3045.02
"		89	15.70	"	3060.72
"		93	1.29	"	3062.01
"		122	97.20	"	3159.21
"		131	197.55	"	3356.76
June 30		43	57.60	"	3414.36
"		76	10.00	"	3424.36
"		104	31.20	"	3455.56
"		106	14.17	"	3469.73
"		111	23.50	"	3493.23
"		117	11.20	"	3504.43
"		92	41.60	"	3546.03
"		122	45.60	"	3591.63
July 31		132	214.98	"	3806.61

Sheet No. _____

Name _____

Address _____

Sheet No. 14

Name _____

Address _____

Experimental Battery Testing #3018

1911		1912		1913		1914	
Sept 30	found	36	1959.244	Sept 30	found	6460	1959.244
" "	" "	91	1957.244	Oct 31	" "	6602	1957.244
" "	" "	121	1957.244	Nov 30	" "	6719	1957.244
" "	" "	"	1957.244	Dec 31	" "	6825	1957.244
Oct 31	" "	81	1957.244				1957.244
" "	" "	87	1957.244				1957.244
" "	" "	101	1957.244				1957.244
" "	" "	119	1957.244				1957.244
Nov 30	" "	29	1957.244				1957.244
Dec 31	" "	124	1957.244				1957.244
" "	" "	116	1957.244				1957.244
" "	" "	153	1957.244				1957.244
			1957.244				1957.244
1913		1913		1913		1913	
Mar 31	To Transfer	120	31125	Mar 31	By S.S. Bond	7202	31125
Apr 30	" "	130	31125	Apr 30	" "	7334	31125
" "	" "	140	31125	May 31	" "	7457	31125
May 31	" "	146	31125	Jun 30	" "	7580	31125
Jun 30	" "	122	31125	Jul 31	" "	7762	31125
Jul 31	" "	129	31125	Aug 31	" "	7857	31125
Aug 30	" "	136	31125	Sep 30	" "	8022	31125
Sep 30	" "	148	31125	Oct 31	" "	8141	31125
" "	" "	154	31125	Nov 30	" "	8260	31125
" "	" "	156	31125	Dec 31	" "	8379	31125
Jan 31	" "	147	31125	Jan 30	" "	8496	31125
" "	" "	146	31125	Feb 31	" "	8614	31125
" "	" "	127	31125	Mar 31	" "	8732	31125
Feb 28	" "	27	31125	Apr 30	" "	8850	31125
" "	" "	28	31125	May 31	" "	8968	31125
" "	" "	29	31125	Jun 30	" "	9085	31125
" "	" "	28	31125	Jul 31	" "	9202	31125
" "	" "	76	31125	Aug 31	" "	9319	31125
" "	" "	134	31125	Sep 30	" "	9436	31125
Mar 31	" "	106	31125	Oct 31	" "	9553	31125
Apr 30	" "	34	31125	Nov 30	" "	9670	31125
" "	" "	116	31125	Dec 31	" "	9787	31125
May 31	" "	115	31125	Jan 30	" "	9904	31125
Jun 30	" "	106	31125	Feb 31	" "	10021	31125
Jul 31	" "	136	31125	Mar 31	" "	10138	31125
Aug 30	" "	2	31125	Apr 30	" "	10255	31125
" "	" "	41	31125	May 31	" "	10372	31125
" "	" "	90	31125	Jun 30	" "	10489	31125
Sept 30	" "	75	31125	Jul 31	" "	10606	31125
Oct 31	" "	47	31125	Aug 31	" "	10723	31125
" "	" "	111	31125	Sep 30	" "	10840	31125
Nov 30	" "	173	31125	Oct 31	" "	10957	31125
Dec 31	" "	3	31125	Nov 30	" "	11074	31125
Jan 30	" "	93	31125	Dec 31	" "	11191	31125
May 31	" "	48	31125				31125

Name _____
Address _____

Name _____
Address _____

Edison storage Battery Co L & M

1912			695176	1911			695176
Aug 31	Sum		179	Aug 31	Sum		6327
" "	"	2085	179	" "	"		6327
" "	"	"	179	" "	"		6470
" "	"	"	64	" "	"		6470
" "	"	"	106	" "	"		6612
Sept 30			106	Sept 30			6612
" "	"	2094	121	" "	"		6612
" "	"	2094	121	" "	"		6612
" "	"	2085	121	" "	"		6612
" "	"	2083	121	" "	"		6612
" "	"	2085	121	" "	"		6612
" "	"	2087	121	" "	"		6612
" "	"	2088	121	" "	"		6612
" "	"	2089	121	" "	"		6612
" "	"	2090	121	" "	"		6612
" "	"	2091	121	" "	"		6612
" "	"	2093	121	" "	"		6612
" "	"	2094	121	" "	"		6612
" "	"	2095	121	" "	"		6612
" "	"	3103	121	" "	"		6612
" "	"	3104	121	" "	"		6612
" "	"	3105	121	" "	"		6612
" "	"	3110	121	" "	"		6612
Oct 31	"	"	91	Oct 31	"		695176
Nov 30	"	"	119	Nov 30	"		695176
" "	"	"	20	" "	"		695176
Dec 31	"	"	122	Dec 31	"		695176
Jan 31	"	"	125	Jan 31	"		695176
Feb 31	"	"	78	Feb 31	"		695176
Mar 31	"	"	155	Mar 31	"		695176
Apr 30	"	"	155	Apr 30	"		695176
May 31	"	"	113	May 31	"		695176
Jun 30	"	"	121	Jun 30	"		695176
Jul 31	"	"	121	Jul 31	"		695176
Aug 31	"	"	121	Aug 31	"		695176
Sept 30	"	"	121	Sept 30	"		695176
Oct 31	"	"	121	Oct 31	"		695176
Nov 30	"	"	121	Nov 30	"		695176
Dec 31	"	"	121	Dec 31	"		695176
Jan 31	"	"	121	Jan 31	"		695176
Feb 31	"	"	121	Feb 31	"		695176
Mar 31	"	"	121	Mar 31	"		695176
Apr 30	"	"	121	Apr 30	"		695176
May 31	"	"	121	May 31	"		695176
Jun 30	"	"	121	Jun 30	"		695176
Jul 31	"	"	121	Jul 31	"		695176
Aug 31	"	"	121	Aug 31	"		695176
Sept 30	"	"	121	Sept 30	"		695176
Oct 31	"	"	121	Oct 31	"		695176
Nov 30	"	"	121	Nov 30	"		695176
Dec 31	"	"	121	Dec 31	"		695176
Jan 31	"	"	121	Jan 31	"		695176
Feb 31	"	"	121	Feb 31	"		695176
Mar 31	"	"	121	Mar 31	"		695176
Apr 30	"	"	121	Apr 30	"		695176
May 31	"	"	121	May 31	"		695176
Jun 30	"	"	121	Jun 30	"		695176
Jul 31	"	"	121	Jul 31	"		695176
Aug 31	"	"	121	Aug 31	"		695176
Sept 30	"	"	121	Sept 30	"		695176
Oct 31	"	"	121	Oct 31	"		695176
Nov 30	"	"	121	Nov 30	"		695176
Dec 31	"	"	121	Dec 31	"		695176
Jan 31	"	"	121	Jan 31	"		695176
Feb 31	"	"	121	Feb 31	"		695176
Mar 31	"	"	121	Mar 31	"		695176
Apr 30	"	"	121	Apr 30	"		695176
May 31	"	"</					

Sheet No. _____

Name _____
Address _____

Edison Storage Battery Co. 27 M

1911

Jan 1	Brought Forward	58745	Jan 1	Brought Forward	58745
Jan 1	Jan 1	20	Jan 1	Jan 1	20
Feb 1	Feb 1	15164	Feb 1	Feb 1	15164
Mar 1	Mar 1	105	Mar 1	Mar 1	105
Apr 1	Apr 1	134	Apr 1	Apr 1	134
May 1	May 1	101	May 1	May 1	101
Jun 1	Jun 1	106	Jun 1	Jun 1	106
Jul 1	Jul 1	89	Jul 1	Jul 1	89
Aug 1	Aug 1	116	Aug 1	Aug 1	116
Sep 1	Sep 1	115	Sep 1	Sep 1	115
Oct 1	Oct 1	106	Oct 1	Oct 1	106
Nov 1	Nov 1	136	Nov 1	Nov 1	136
Dec 1	Dec 1	95	Dec 1	Dec 1	95
Jan 2	Jan 2	95	Jan 2	Jan 2	95
Feb 2	Feb 2	115	Feb 2	Feb 2	115
Mar 2	Mar 2	73	Mar 2	Mar 2	73
Apr 2	Apr 2	100	Apr 2	Apr 2	100
May 2	May 2	103	May 2	May 2	103
Jun 2	Jun 2	134	Jun 2	Jun 2	134
Jul 2	Jul 2	152	Jul 2	Jul 2	152
Aug 2	Aug 2	138	Aug 2	Aug 2	138
Sep 2	Sep 2	117	Sep 2	Sep 2	117
Oct 2	Oct 2	13	Oct 2	Oct 2	13
Nov 2	Nov 2	171	Nov 2	Nov 2	171
Dec 2	Dec 2	258	Dec 2	Dec 2	258
Jan 3	Jan 3	119	Jan 3	Jan 3	119
Feb 3	Feb 3	293	Feb 3	Feb 3	293
Mar 3	Mar 3	45	Mar 3	Mar 3	45
Apr 3	Apr 3	133	Apr 3	Apr 3	133
May 3	May 3	207	May 3	May 3	207
Jun 3	Jun 3	9	Jun 3	Jun 3	9
Jul 3	Jul 3	111	Jul 3	Jul 3	111
Aug 3	Aug 3	122	Aug 3	Aug 3	122
Sep 3	Sep 3	31	Sep 3	Sep 3	31
Oct 3	Oct 3	48	Oct 3	Oct 3	48
Nov 3	Nov 3	112	Nov 3	Nov 3	112
Dec 3	Dec 3	200	Dec 3	Dec 3	200
Jan 4	Jan 4	48	Jan 4	Jan 4	48
Feb 4	Feb 4	96	Feb 4	Feb 4	96
Mar 4	Mar 4	177	Mar 4	Mar 4	177
Apr 4	Apr 4	50	Apr 4	Apr 4	50
May 4	May 4	122	May 4	May 4	122
Jun 4	Jun 4	1	Jun 4	Jun 4	1
Jul 4	Jul 4	129	Jul 4	Jul 4	129
Aug 4	Aug 4	276	Aug 4	Aug 4	276
Sep 4	Sep 4	226	Sep 4	Sep 4	226
Oct 4	Oct 4	204	Oct 4	Oct 4	204
Nov 4	Nov 4	1019	Nov 4	Nov 4	1019
Dec 4	Dec 4	135	Dec 4	Dec 4	135
Jan 5	Jan 5	148	Jan 5	Jan 5	148
Feb 5	Feb 5	1	Feb 5	Feb 5	1
Mar 5	Mar 5	36	Mar 5	Mar 5	36
Apr 5	Apr 5	126	Apr 5	Apr 5	126
May 5	May 5	113	May 5	May 5	113

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Sheet No. _____

Name _____
Address _____

Edison Storage Battery Co. 27 M

1911

Jan 1	Jan 1	58745	Jan 1	Jan 1	58745
Jan 1	Jan 1	20	Jan 1	Jan 1	20
Feb 1	Feb 1	15164	Feb 1	Feb 1	15164
Mar 1	Mar 1	105	Mar 1	Mar 1	105
Apr 1	Apr 1	134	Apr 1	Apr 1	134
May 1	May 1	101	May 1	May 1	101
Jun 1	Jun 1	106	Jun 1	Jun 1	106
Jul 1	Jul 1	89	Jul 1	Jul 1	89
Aug 1	Aug 1	116	Aug 1	Aug 1	116
Sep 1	Sep 1	115	Sep 1	Sep 1	115
Oct 1	Oct 1	106	Oct 1	Oct 1	106
Nov 1	Nov 1	136	Nov 1	Nov 1	136
Dec 1	Dec 1	95	Dec 1	Dec 1	95
Jan 2	Jan 2	95	Jan 2	Jan 2	95
Feb 2	Feb 2	115	Feb 2	Feb 2	115
Mar 2	Mar 2	73	Mar 2	Mar 2	73
Apr 2	Apr 2	100	Apr 2	Apr 2	100
May 2	May 2	103	May 2	May 2	103
Jun 2	Jun 2	134	Jun 2	Jun 2	134
Jul 2	Jul 2	152	Jul 2	Jul 2	152
Aug 2	Aug 2	138	Aug 2	Aug 2	138
Sep 2	Sep 2	117	Sep 2	Sep 2	117
Oct 2	Oct 2	13	Oct 2	Oct 2	13
Nov 2	Nov 2	171	Nov 2	Nov 2	171
Dec 2	Dec 2	258	Dec 2	Dec 2	258
Jan 3	Jan 3	119	Jan 3	Jan 3	119
Feb 3	Feb 3	293	Feb 3	Feb 3	293
Mar 3	Mar 3	45	Mar 3	Mar 3	45
Apr 3	Apr 3	133	Apr 3	Apr 3	133
May 3	May 3	207	May 3	May 3	207
Jun 3	Jun 3	9	Jun 3	Jun 3	9
Jul 3	Jul 3	111	Jul 3	Jul 3	111
Aug 3	Aug 3	122	Aug 3	Aug 3	122
Sep 3	Sep 3	31	Sep 3	Sep 3	31
Oct 3	Oct 3	48	Oct 3	Oct 3	48
Nov 3	Nov 3	112	Nov 3	Nov 3	112
Dec 3	Dec 3	200	Dec 3	Dec 3	200
Jan 4	Jan 4	48	Jan 4	Jan 4	48
Feb 4	Feb 4	96	Feb 4	Feb 4	96
Mar 4	Mar 4	177	Mar 4	Mar 4	177
Apr 4	Apr 4	50	Apr 4	Apr 4	50
May 4	May 4	122	May 4	May 4	122
Jun 4	Jun 4	1	Jun 4	Jun 4	1
Jul 4	Jul 4	129	Jul 4	Jul 4	129
Aug 4	Aug 4	276	Aug 4	Aug 4	276
Sep 4	Sep 4	226	Sep 4	Sep 4	226
Oct 4	Oct 4	204	Oct 4	Oct 4	204
Nov 4	Nov 4	1019	Nov 4	Nov 4	1019
Dec 4	Dec 4	135	Dec 4	Dec 4	135
Jan 5	Jan 5	148	Jan 5	Jan 5	148
Feb 5	Feb 5	1	Feb 5	Feb 5	1
Mar 5	Mar 5	36	Mar 5	Mar 5	36
Apr 5	Apr 5	126	Apr 5	Apr 5	126
May 5	May 5	113	May 5	May 5	113

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Sheet No. _____

Name _____

Address _____

Sheet No. 18

Name _____

Address _____

Edison Phonograph Works Labor material for _____

SEE OTHER MAT. IN BOOK NO. 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

Mar 31 To Truck 71

Apr 30 " " 84

" " " 85

" " " 86

May 31 " " 80

June 30 " " 79

July 31 " " 80

Aug 31 " " 37

" " " 46

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1908

Mar 31 By R. M. Invoice 44

Apr 30 " " 136

May 31 " " 186

June 30 " " 249

July 31 " " 309

Aug 31 " " 381

Sept 30 " " 455

Oct 31 " " 541

Nov 30 " " 620

Dec 31 " " 715

Jan 30 " " 785

Feb 27 " " 845

Mar 31 " " 912

Apr 30 " " 979

May 31 " " 1064

June 30 " " 1140

July 31 " " 1224

Aug 31 " " 1325

Sept 30 " " 1399

Oct 30 " " 1476

Nov 30 " " 1566

Dec 31 " " 1657

Jan 31 " " 1752

Feb 27 " " 1834

Mar 31 " " 1920

Apr 30 " " 2007

May 31 " " 2001

" " " 2001

" " " 2001

" " " 2001

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" " " 2001

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Sheet No. _____

Name _____
Address _____Sheet No. 22Name _____
Address _____

Edison Portland Cement Co (Labor Material for)

1908			1908			1908		
May 31	To Voucher	80	17 41	May 31	By L & M Invoice	170	1885	
" "	" "	81	96	June 30	" "	229	1885	
" "	" "	82	48	Sept 30	" "	435	1885	
June 30	" "	77	11 11	1910	" "	197	1885	
" "	" "	77	25	May 31	" "	2173	1885	
Sept 30	" "	92	26 20	May 31	" "	2772	1885	
1910	" "	102	47 13	Sept 30	" "	2920	1885	
May 31	" "	104	17 70	Oct 31	" "	2934	1885	
" "	" "	32	23	" "	" "	3097	1885	
Sept 30	" "	50	50 00	Nov 30	" "	3123	1885	
" "	" "	96	82 8	Dec 31	" "	3272	1885	
" "	" "	97	107	Jan 31	" "	3405	1885	
" "	" "	98	3486	" "	" "	4658	1885	
Oct 31	" "	93	1243	Aug 31	" "	5086	1885	
" "	" "	94	455	Sept 30	" "	5644	1885	
" "	" "	101	181	Nov 30	" "	5958	1885	
Nov 30	" "	126	249	Dec 31	" "	6111	1885	
" "	" "	128	200	Jan 31	" "	6306	1885	
" "	" "	129	407	Feb 28	" "	6390	1885	
Dec 31	" "	48	127	Aug 31	" "	6532	1885	
" "	" "	49	965	Sept 30	" "	6671	1885	
Jan 31	" " " " " " " " " " " "	179	5700	Oct 31	" "	6893	1885	
" "	" " " " " " " " " " " "	22	4657	Nov 30	" "	7015	1885	
Aug 31	" " " " " " " " " " " "	113	1650	Dec 31	" "	7015	1885	
Sept 30	" " " " " " " " " " " "	122	3420	July 28	" "	7015	1885	
Nov 30	" " " " " " " " " " " "	90	2127					
May 31	" " " " " " " " " " " "	77	2127					
June 29	" " " " " " " " " " " "	142	2127					
" "	" " " " " " " " " " " "	145	3207					
July 31	" " " " " " " " " " " "	77	3127					
Aug 31	" " " " " " " " " " " "	70	3127					
Oct 30	" " " " " " " " " " " "	107	3972					
Oct 31	" " " " " " " " " " " "	97	3127					
Dec 30	" " " " " " " " " " " "	152	3127					
Jan 31	" " " " " " " " " " " "	101	350					
July 28	" " " " " " " " " " " "	91	350					
			11117					
Mar 31	To Lumber	118	25	Mar 31	By L & M Inv	7293	25	
May 31	" "	96	449	May 31	" "	7542	449	
July 31	" "	88	1000	July 31	" "	7815	1000	
Oct 31	" "	110	143	Oct 31	" "	8153	143	
Nov 30	" "	100	900	Nov 30	" "	8270	910	
Dec 31	" "	152	120	Dec 31	" "	8399	120	
Jan 31	" "	126	863	Jan 31	" "	8438	1050	
" "	" "	127	300	" "	" "	8677	863	
July 28	" "	76	200	July 28	" "	1607	200	
Aug 30	" "	74	50	Oct 30	" "	8723	50	
May 31	" "	89	21	May 31	" "	8922	76	
" "	" "	88	55	May 30	" "	9022	621	
Nov 30	" "	71	600	July 31	" "	9117	130	
July 31	" "	93	21	Sept 30	" "	9222	130	
Sept 30	" "	66	130				130	
			130				130	
			130				130	

Sheet No.

Name
Address

Edison Portland Cement Co, L 777

1914		61.75	1914	64.77
Sept. 30. Bought Forward		41.93	Sept. 30. Bought Forward	48.74
Oct. 31. " "	91	21	Oct. 31. L 777 Inv	55
Nov. 31. " "	113	6.15	Dec. 31. " "	462
Dec. 31. " "	150	3.50		
General Expenses		73.35		
		73.35		73.35
Jan. 31. " "	136	166	Nov. 31. By L 777 Inv	96.77
Feb. 27. " "	71	35.50	Dec. 28. " "	95.8
Mar. 31. " "	104	21	Mar. 31. " "	55
Apr. 30. " "	99	50	Apr. 30. " "	57
May 31. " "	93	75	May 31. " "	106.1
June 31. " "	92	20	June 31. " "	65
July 31. " "	135	50	Dec. 31. " "	700
Aug. 31. " "	181	120	Jan. 31. " "	105.7
Sept. 30. " "	93	700	Mar. 31. " "	900
Oct. 31. " "	94	10	Apr. 30. " "	10
Nov. 31. " "	86	190	May 31. " "	117.2
Dec. 31. " "	93	500		
Jan. 31. " "	76	10		
Feb. 27. 31. " "	135	113.6		

Sheet No.

Name
Address

Experimental Work on Musical Cylinder Phonograph

18903

1914		59.19	1914	10.75
Apr. 30. Bought Forward		871.90	Apr. 30. Bought Forward	1000.00
May 31. " "	16	75	May 31. By L 777 Inv	150.00
June 30. " "	31	150	June 30. " "	150.00
July 31. " "	10	70	July 31. " "	150.00
Aug. 31. " "	101	180	Aug. 31. " "	150.00
Sept. 30. " "	137	150	Sept. 30. " "	150.00
Oct. 31. " "	139	150	Oct. 31. " "	150.00
Nov. 31. " "	140	150	Nov. 31. " "	150.00
Dec. 31. " "	27	150	Dec. 31. " "	150.00
Jan. 31. " "	52	119	Jan. 31. " "	150.00
Feb. 28. " "	81	90	Feb. 28. " "	150.00
Mar. 31. " "	111	11	Mar. 31. " "	150.00
Apr. 30. " "	145	53.18	Apr. 30. " "	150.00
May 31. " "	42	20	May 31. " "	150.00
June 30. " "	44	50	June 30. " "	150.00
July 31. " "	45	40	July 31. " "	150.00
Aug. 31. " "	129	234.16	Aug. 31. " "	150.00
Sept. 30. " "	45	171.67	Sept. 30. " "	150.00
Oct. 31. " "	179	168.27	Oct. 31. " "	150.00
Nov. 30. " "	79	60.1	Nov. 30. " "	150.00
Dec. 31. " "	107	08	Dec. 31. " "	150.00
Jan. 31. " "	116	133.14	Jan. 31. " "	150.00
Feb. 28. " "	29	89.0	Feb. 28. " "	150.00
Mar. 31. " "	30	99.1	Mar. 31. " "	150.00
Apr. 30. " "	74	179.1	Apr. 30. " "	150.00
May 31. " "	97	15	May 31. " "	150.00
June 30. " "	108	05	June 30. " "	150.00
July 31. " "	109	588.33	July 31. " "	150.00
Aug. 31. " "	50	50	Aug. 31. " "	150.00
Sept. 30. " "	177	183.45	Sept. 30. " "	150.00
Oct. 31. " "	46	123.08	Oct. 31. " "	150.00
Nov. 30. " "	44	123.05	Nov. 30. " "	150.00
Dec. 31. " "	49	500.0	Dec. 31. " "	150.00
Jan. 31. " "	79	24.75	Jan. 31. " "	150.00
Feb. 28. " "	100	85	Feb. 28. " "	150.00
Mar. 31. " "	111	380.77	Mar. 31. " "	150.00
Apr. 30. " "	44	168	Apr. 30. " "	150.00
May 31. " "	45	1355	May 31. " "	150.00
June 30. " "	46	1168	June 30. " "	150.00
July 31. " "	155	15	July 31. " "	150.00
Aug. 31. " "	156	528.46	Aug. 31. " "	150.00
Sept. 30. " "	159	311.77	Sept. 30. " "	150.00
Oct. 31. " "	68	02	Oct. 31. " "	150.00
Nov. 30. " "	69	02	Nov. 30. " "	150.00
Dec. 31. " "	127	221.68	Dec. 31. " "	150.00
Jan. 31. " "	117	451	Jan. 31. " "	150.00
Feb. 28. " "	134	478.00	Feb. 28. " "	150.00
Mar. 31. " "	66	11.65	Mar. 31. " "	150.00
Apr. 30. " "	106	196.21	Apr. 30. " "	150.00
May 31. " "	116	57.72	May 31. " "	150.00
June 30. " "	103	44	June 30. " "	150.00
July 31. " "	115	64.05	July 31. " "	150.00
Aug. 31. " "		473.87	Aug. 31. " "	150.00

Sheet No.

Name
AddressExperimental Book on Musical Keyboards
#2903

June 3	Brought forward	27	14738	June 3	Brought forward	14738	14738
"	"	71	230	July 31	"	9087	14738
"	"	95	76	Aug 30	"	9161	14738
July 31	"	106	219	Sept 30	"	9161	14738
"	"	38	200	Oct 31	"	9161	14738
"	"	89	10	Nov 30	"	9161	14738
"	"	112	24	Dec 31	"	9161	14738
"	"	136	76	Jan 31	"	9161	14738
Aug 30	"	79	117	Feb 28	"	9161	14738
"	"	51	2500	"	"	9161	14738
"	"	89	01	Mar 31	Estimated	9161	14738
"	"	90	63	Apr 30	"	9161	14738
Sept 30	"	21	50	May 31	"	9161	14738
"	"	25	256	June 30	"	10119	14738
"	"	28	135	"	"	10119	14738
"	"	32	150	"	"	10119	14738
"	"	66	10	"	"	10119	14738
"	"	81	326	"	"	10119	14738
Oct 31	"	95	113	"	"	10119	14738
"	"	104	10	"	"	10119	14738
"	"	115	157	"	"	10119	14738
"	"	127	108	"	"	10119	14738
Nov 30	"	115	109	"	"	10119	14738
"	"	12	36	"	"	10119	14738
Dec 31	"	138	150	"	"	10119	14738
"	"	150	152	"	"	10119	14738
Jan 31	"	30	152	"	"	10119	14738
"	"	51	152	"	"	10119	14738
"	"	80	152	"	"	10119	14738
"	"	102	152	"	"	10119	14738
Feb 28	"	135	152	"	"	10119	14738
"	"	147	152	"	"	10119	14738
"	"	116	152	"	"	10119	14738
Mar 31	"	114	152	"	"	10119	14738
"	"	97	152	"	"	10119	14738
Apr 30	"	171	152	"	"	10119	14738
"	"	22	152	"	"	10119	14738
"	"	87	152	"	"	10119	14738
"	"	50	152	"	"	10119	14738
May 31	"	170	152	"	"	10119	14738
"	"	189	152	"	"	10119	14738
June 30	"	293	152	"	"	10119	14738
"	"	55	152	"	"	10119	14738
"	"	63	152	"	"	10119	14738
"	"	111	152	"	"	10119	14738
"	"	129	152	"	"	10119	14738
"	"	281	152	"	"	10119	14738

Sheet No.

Name
AddressExperimental Book on Musical Keyboards
#2903

July 31	Brought forward	9	14738	July 31	Brought forward	14738	14738
"	"	11	230	Aug 30	"	9161	14738
"	"	12	76	Sept 30	"	9161	14738
"	"	147	219	Oct 31	"	9161	14738
"	"	93	200	Nov 30	"	9161	14738
"	"	156	10	Dec 31	"	9161	14738
Aug 31	"	13	24	Jan 31	"	9161	14738
"	"	31	100	Feb 28	"	9161	14738
"	"	80	120	Mar 31	"	9161	14738
Sept 30	"	271	179	Apr 30	"	9161	14738
"	"	59	213	May 31	"	9161	14738
"	"	43	10	June 30	"	10119	14738
"	"	180	100	July 31	"	10119	14738
"	"	188	26	"	"	10119	14738
Oct 31	"	200	115	"	"	10119	14738
"	"	30	322	"	"	10119	14738
"	"	37	322	"	"	10119	14738
Nov 30	"	177	176	"	"	10119	14738
"	"	47	176	"	"	10119	14738
Dec 31	"	211	176	"	"	10119	14738
Jan 31	"	226	176	"	"	10119	14738
Feb 28	"	47	117	"	"	10119	14738
"	"	148	206	"	"	10119	14738
Mar 31	"	176	226	"	"	10119	14738
"	"	30	226	"	"	10119	14738
Apr 30	"	118	226	"	"	10119	14738
"	"	119	226	"	"	10119	14738
May 31	"	40	226	"	"	10119	14738
"	"	14	226	"	"	10119	14738
June 30	"	94	226	"	"	10119	14738
"	"	180	226	"	"	10119	14738
"	"	28	226	"	"	10119	14738
"	"	46	226	"	"	10119	14738
July 31	"	108	226	"	"	10119	14738
"	"	129	226	"	"	10119	14738

This record book is used in connection with the record book on Musical Keyboards, and is not to be used as a record book on its own.

Sheet No.

Name
Address

Sheet No. 41

Name
Address

Thomas A. Edison Inc. LHM

1911				1911				
Mar 31	To Voucher	67	73.40	Mar 31	By L. E. Deane	3720	77.99	
" "	" "	116	3.69	Apr 30	" "	4912	4.62	
Apr 30	" "	115	7.69	May 31	" "	4112	15.22	
May 31	" "	117	1.40	June 30	" "	4299	3.86	
June 30	" "	118	24.00	July 31	" "	4424	1.86	
July 31	" "	112	146.60	Aug 31	" "	4576	1.25	
Aug 31	" "	119	20.60	Sept 30	" "	4726	1.25	
" "	" "	120	7.1	Oct 31	" "	4879	1.25	
" "	" "	121	7.1	Nov 30	" "	5027	1.25	
Sept 30	" "	110	1.44	Dec 31	" "	5172	1.25	
Oct 31	" "	115	6.93	Jan 31	" "	5314	3.53	
Nov 30	" "	117	17.15	Feb 29	" "	5460	2.53	
" "	" "	118	8.55	Mar 30	" "	5591	2.53	
" "	" "	119	2.40	Apr 30	" "	5744	2.53	
Dec 30	" "	120	50.00	May 31	" "	5737	1.25	
Jan 31	" "	128	52.37	June 30	" "	6077	4.36	
Feb 29	" "	144	21.33	July 31	" "	6225	4.36	
Mar 30	" "	127	27.42	Aug 31	" "	6380	4.36	
Apr 30	" "	142	37.50	Sept 30	" "	6518	4.36	
May 31	" "	140	37.50	Oct 31	" "	6600	4.36	
June 29	" "	8	2.49	Nov 30	" "	6766	4.36	
" "	" "	145	4.36	Dec 31	" "	6876	4.36	
July 31	" "	142	5.68	Jan 31	" "	6999	7.37	
Aug 31	" "	129	4.17	Feb 28	" "	7133	5.82	
Sept 30	" "	121	3.00					
Oct 31	" "	94	43.61					
Nov 30	" "	129	1.88					
Dec 31	" "	124	50.00					
Jan 31	" "	155	1.28					
Feb 28	" "	60	10.00					
Mar 31	" "	155	33.57					
Apr 30	" "	121	50.00					
May 31	" "	121	65.87					
June 30	" "	120	65.87					
July 31	" "	120	41.08					
Aug 30	" "	117	33.05					
Sept 30	" "	120	35.81					
Oct 31	" "	52	37.14					
Nov 30	" "	129	39.21					
Dec 31	" "	116	33.10					
Jan 31	" "	109	38.44					
Feb 28	" "	127	33.26					
Mar 31	" "	100	40.00					
Apr 30	" "	139	13.00					
May 31	" "	145	31.84					
June 30	" "	136	11.59					
July 31	" "	126	7.79					
Aug 31	" "	129	10.00					
Sept 30	" "	136	30.76					
Oct 31	" "	106	38.40					
Nov 30	" "	116	27.77					
Dec 31	" "	116	27.77					
Mar 31	To Voucher	120	23.80	1912				
Apr 30	" "	140	41.08	Mar 31	By L. E. Deane	7744	33.80	
May 31	" "	117	33.05	Apr 30	" "	7460	41.08	
June 30	" "	120	35.81	May 31	" "	7528	33.80	
July 31	" "	52	37.14	June 30	" "	7676	35.74	
Aug 31	" "	129	39.21	July 31	" "	7807	35.74	
Sept 30	" "	116	33.10	Aug 31	" "	7921	53.10	
Oct 31	" "	109	38.44	Sept 30	" "	8034	38.44	
Nov 30	" "	127	33.26	Oct 31	" "	8145	53.56	
Dec 31	" "	100	40.00	Nov 30	" "	8268	83.14	
Jan 31	" "	139	13.00	Dec 31	" "	8393	41.59	
Feb 28	" "	145	31.84	Jan 31	" "	8508	32.18	
Mar 31	" "	136	11.59	Feb 28	" "	8576	40.76	
Apr 30	" "	126	7.79	Mar 31	" "	8714	38.44	
May 31	" "	129	10.00	Apr 30	" "	8777	33.12	
June 30	" "	136	30.76	May 31	" "	8910	7.07	
July 31	" "	106	38.40					
Aug 31	" "	116	27.77					

Sheet No. _____

Name
Address

Thomas A. Edison Inc.

1210

Month	Year	Amount	Balance	Month	Year	Amount	Balance
May 31	115	3351	May 31	8710	3351		
June 30	106	3418	June 30	8710	3345		
July 31	136	3428	July 31	8710	3429		
Aug 31	90	3428	Aug 31	8710	3429		
Sept 30	90	3428	Sept 30	8710	3429		
Oct 31	108	3428	Oct 31	8710	3429		
Nov 30	115	3428	Nov 30	8710	3429		
Dec 31	73	3428	Dec 31	8710	3429		
1891	109	3428	1891	8710	3429		
Jan 31	130	3428	Jan 31	8710	3429		
Feb 28	152	3428	Feb 28	8710	3429		
Mar 31	152	3428	Mar 31	8710	3429		
Apr 30	152	3428	Apr 30	8710	3429		
May 31	152	3428	May 31	8710	3429		
June 30	152	3428	June 30	8710	3429		
July 31	152	3428	July 31	8710	3429		
Aug 31	152	3428	Aug 31	8710	3429		
Sept 30	152	3428	Sept 30	8710	3429		
Oct 31	152	3428	Oct 31	8710	3429		
Nov 30	152	3428	Nov 30	8710	3429		
Dec 31	152	3428	Dec 31	8710	3429		

Sheet No. _____

Name
Address

Thos. A. Edison Inc.

1210

Name
Address

1210

Dec 31	10771	10081	Dec 31	10771	10081
Jan 31	10771	10081	Jan 31	10771	10081
Feb 29	10771	10081	Feb 29	10771	10081
Mar 31	10771	10081	Mar 31	10771	10081
Apr 30	10771	10081	Apr 30	10771	10081
May 31	10771	10081	May 31	10771	10081
June 30	10771	10081	June 30	10771	10081
July 31	10771	10081	July 31	10771	10081
Aug 31	10771	10081	Aug 31	10771	10081
Sept 30	10771	10081	Sept 30	10771	10081
Oct 31	10771	10081	Oct 31	10771	10081
Nov 30	10771	10081	Nov 30	10771	10081
Dec 31	10771	10081	Dec 31	10771	10081

Sheet No. _____

Name _____
Address _____Experimental Work on Primary Galleries *12701*

1913		1913					
Apr 30 To Lumber	28	1003	Apr 30 By 208 In	9281	3520		
" " "	88	320	May 31 " " "	7003	15439		
" " "	104	40	May 20 " " "	7689	1344		
May 31	140	2300	June 31 " " "	7790	1344		
" " "	9	2300	July 31 " " "	7795	1344		
" " "	141	50	Aug 31 " " "	8009	1038		
" " "	137	50	Oct 31 " " "	8125	1650		
" " "	147	14194	Nov 31 " " "	8245	5570		
June 30	16	810	Dec 31 " " "	8481	20		
" " "	141	445	Jan 30 " " "	8773	1811		
" " "	149	1045	Feb 31 " " "	9305	570		
July 31	116	2701					
" " "	109	1071					
Sept 30	127	1650					
" " "	100	5570					
Nov 30	34	570					
Dec 31	115	570					

Sheet No. _____

Name _____
Address _____Experimental Work on Business Phone *12700*

1913		1914					
June 30 Bought Forward	72	990735	June 31 Bought Forward	9800	1070488		
" " "	96	140	July 31 By Machine In	9159	167148		
" " "	103	30	" " "	9159	167148		
" " "	106	05	Oct 31 " " "	9453	185336		
July 31	3	78035	Nov 31 " " "	9448	185336		
" " "	35	216	Dec 31 " " "	9540	185336		
" " "	38	3677					
" " "	48	350					
" " "	91	1370					
" " "	104	400					
" " "	89	870					
" " "	135	38					
Aug 31	136	69757					
" " "	2	70					
" " "	13	113					
" " "	17	10					
" " "	35	20					
" " "	50	478					
" " "	51	870					
" " "	56	638					
" " "	68	56					
" " "	79	3079					
" " "	80	1277					
" " "	81	1214					
" " "	89	06					
Sept 30	90	61817					
" " "	95	1045					
" " "	62	470					
" " "	66	490					
" " "	71	19					
" " "	75	44863					
" " "	79	38					
" " "	41	2466					
" " "	44	1397					
" " "	68	16					
" " "	73	107					
" " "	75	60					
" " "	100	804					
" " "	106	1170					
" " "	113	2226					
" " "	114	19					
" " "	115	12756					
Nov 30	67	707					
" " "	109	1058064					
Dec 31	15	837					
" " "	80	50					
" " "	80	1000					
" " "	126	140					
" " "	129	1204					
" " "	134	2673					
" " "	150	900					
" " "	157	11					
" " "	157	76467					
" " "		62733					

Sheet No.

Name
Address

Experimental Work on Business Chron. 1920

21. 566.

1919	1920	1921	1922	1923
Jan 31	17	717	Jan 31	1632.63
Feb 31	30	1270	Feb 28	1638
"	15	15	"	1638
"	186	370	Mar 31	1638
"	187	33	Apr 30	1638
"	138	156	May 31	1638
"	87	156	June 30	1638
"	71	156	July 31	1638
"	146	156	Aug 31	1638
"	147	156	Sept 30	1638
"	116	156	"	1638
"	117	156	"	1638
Mar 31	81	156	"	1638
"	37	1093	"	1638
"	77	1093	"	1638
"	123	1093	"	1638
"	128	1093	"	1638
"	171	1093	"	1638
Apr 30	24	1093	"	1638
"	31	1093	"	1638
"	70	1093	"	1638
"	158	1093	"	1638
May 31	50	1093	"	1638
"	59	1093	"	1638
"	185	1093	"	1638
"	203	1093	"	1638
June 30	63	1093	"	1638
"	129	1093	"	1638
"	167	1093	"	1638
July 31	257	1093	"	1638
"	20	1093	"	1638
"	47	1093	"	1638
"	93	1093	"	1638
"	112	1093	"	1638
Aug 31	216	1093	"	1638
"	24	1093	"	1638
"	58	1093	"	1638
"	80	1093	"	1638
"	100	1093	"	1638
"	108	1093	"	1638
"	220	1093	"	1638
Sept 30	221	1093	"	1638
"	59	1093	"	1638
"	100	1093	"	1638
"	127	1093	"	1638
"	188	1093	"	1638
"	190	1093	"	1638
"	199	1093	"	1638
"	200	1093	"	1638

Sheet No.

Name
Address

Experimental Work on Business Chron. 1920

1919	1920	1921	1922	1923
Oct 31	35	1713	Oct 31	1713
"	37	1713	"	1713
"	43	1713	"	1713
"	57	1713	"	1713
"	171	1713	"	1713
"	4	1713	"	1713
Nov 30	1	1713	"	1713
"	6	1713	"	1713
"	13	1713	"	1713
"	16	1713	"	1713
"	118	1713	"	1713
"	120	1713	"	1713
"	127	1713	"	1713
"	212	1713	"	1713
Dec 31	22	1713	"	1713
"	37	1713	"	1713
"	40	1713	"	1713
"	51	1713	"	1713
"	56	1713	"	1713
"	123	1713	"	1713
"	200	1713	"	1713
"	225	1713	"	1713
"	226	1713	"	1713
Jan 31	16	1713	"	1713
"	39	1713	"	1713
"	60	1713	"	1713
"	149	1713	"	1713
"	118	1713	"	1713
"	4	1713	"	1713
"	9	1713	"	1713
"	30	1713	"	1713
"	31	1713	"	1713
"	35	1713	"	1713
"	57	1713	"	1713
"	113	1713	"	1713
"	126	1713	"	1713
"	1	1713	"	1713
Mar 31	5	1713	"	1713
"	6	1713	"	1713
"	7	1713	"	1713
"	17	1713	"	1713
"	28	1713	"	1713
"	38	1713	"	1713
"	39	1713	"	1713
"	40	1713	"	1713
"	41	1713	"	1713
"	42	1713	"	1713
"	43	1713	"	1713
"	44	1713	"	1713
"	45	1713	"	1713
"	46	1713	"	1713
"	47	1713	"	1713
"	48	1713	"	1713
"	49	1713	"	1713
"	50	1713	"	1713
"	51	1713	"	1713
"	52	1713	"	1713
"	53	1713	"	1713
"	54	1713	"	1713
"	55	1713	"	1713
"	56	1713	"	1713
"	57	1713	"	1713
"	58	1713	"	1713
"	59	1713	"	1713
"	60	1713	"	1713

Name ..
Address ..

Experimental Work on Quimer Phono
#2900

1916	7,795,531.1	1916	7,795,531.1	1916	7,795,531.1
Apr 30	1000000	35	201	Apr 30	11116
"	"	50	21711	May 31	11552
"	"	16	12	June 30	11536
"	"	67	3116	July 31	11631
"	"	92	126	"	"
"	"	91	693	"	"
"	"	91	1,191,155	"	"
"	"	21	123	"	"
"	"	30	1,124	"	"
"	"	33	1,170	"	"
"	"	48	2,711	"	"
"	"	49	379,571	"	"
"	"	51	257	"	"
"	"	73	391	"	"
"	"	92	2,185	"	"
"	"	120	697	"	"
"	"	128	67	"	"
"	"	129	284	"	"
"	"	131	1,197,99	"	"
"	"	58	206	"	"
"	"	31	521	"	"
"	"	38	476	"	"
"	"	40	774	"	"
"	"	41	43316	"	"
"	"	42	19	"	"
"	"	43	126	"	"
"	"	76	197	"	"
"	"	106	210	"	"
"	"	107	21	"	"
"	"	108	71915	"	"
"	"	35	1,193	"	"
"	"	39	35	"	"
"	"	40	20777	"	"
"	"	41	333	"	"
"	"	43	68	"	"
"	"	46	75	"	"
"	"	96	600	"	"
"	"	122	21,747	"	"
"	"	123	1,155	"	"

Sheet No.

Name _____
Address _____

Experimental Work on Sir Thomas

1873		1872			
Oct 1	Borg & Berglund	276.48	Oct 1	Borg & Berglund	276.48
31	"	28	31	Chas. E. Anderson	972.33
"	"	26	"	"	277.97
"	"	50	"	"	36.36
"	"	10	"	"	420.11
"	"	141	"	"	426.39
"	"	152	"	"	116.57
Nov 30	"	44	Nov 31	"	86.88
"	"	29	"	"	285.14
"	"	164	Dec 30	"	90.88
Dec 31	"	16	May 31	"	18.60
"	"	151	"	"	345.08
"	"	156	Jan 30	"	27.08
Jan 31	"	177	Feb 31	"	182.27
Feb 28	"	34	Mar 30	"	177.78
"	"	28	Apr 30	"	189.15
"	"	68	"	"	"
"	"	76	"	"	"
"	"	94	"	"	"
"	"	112	"	"	"
"	"	113	"	"	"
Mar 31	"	134	"	"	"
"	"	21	"	"	"
"	"	66	"	"	"
Apr 30	"	106	"	"	"
"	"	25	"	"	"
"	"	36	"	"	"
"	"	60	"	"	"
"	"	71	"	"	"
"	"	81	"	"	"
"	"	93	"	"	"
"	"	110	"	"	"
May 31	"	116	"	"	"
"	"	68	"	"	"
"	"	102	"	"	"
"	"	103	"	"	"
"	"	105	"	"	"
"	"	114	"	"	"
"	"	115	"	"	"
June 30	"	27	"	"	"
"	"	71	"	"	"
"	"	94	"	"	"
"	"	106	"	"	"
"	"	35	"	"	"
July 31	"	136	"	"	"
"	"	56	"	"	"
"	"	78	"	"	"
"	"	90	"	"	"
Sept 30	"	25	"	"	"
"	"	66	"	"	"
"	"	84	"	"	"

Sheet No.

Name
AddressExperimental Work on Deer Thong
17901

Sept 30	17901	17901	17901	17901	17901
Oct 31	17901	17901	17901	17901	17901
Nov 30	17901	17901	17901	17901	17901
Dec 31	17901	17901	17901	17901	17901
Jan 31	17901	17901	17901	17901	17901
Feb 29	17901	17901	17901	17901	17901
Mar 31	17901	17901	17901	17901	17901
Apr 30	17901	17901	17901	17901	17901
May 31	17901	17901	17901	17901	17901
June 30	17901	17901	17901	17901	17901
July 31	17901	17901	17901	17901	17901
Aug 31	17901	17901	17901	17901	17901
Sept 30	17901	17901	17901	17901	17901

Sheet No.

Name
AddressExperimental Work on Deer Thong
17902

Sept 30	17902	17902	17902	17902	17902
Oct 31	17902	17902	17902	17902	17902
Nov 30	17902	17902	17902	17902	17902
Dec 31	17902	17902	17902	17902	17902
Jan 31	17902	17902	17902	17902	17902
Feb 29	17902	17902	17902	17902	17902
Mar 31	17902	17902	17902	17902	17902
Apr 30	17902	17902	17902	17902	17902
May 31	17902	17902	17902	17902	17902
June 30	17902	17902	17902	17902	17902
July 31	17902	17902	17902	17902	17902
Aug 31	17902	17902	17902	17902	17902
Sept 30	17902	17902	17902	17902	17902

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

53A

Experimental Work on Ford Auto.
#3538

1927		1928	1929	1930	1931
Apr 30	100	717.51	717.51	717.51	717.51
May 31	157	717.51	717.51	717.51	717.51
June 30	176	200	200	200	200
July 31	177	737.71	737.71	737.71	737.71
Aug 31	24	717.51	717.51	717.51	717.51
Sept 30	76	717.51	717.51	717.51	717.51
Oct 31	190	717.51	717.51	717.51	717.51
Nov 30	116	717.51	717.51	717.51	717.51
Dec 31	39	717.51	717.51	717.51	717.51
Jan 31	47	521	521	521	521
Feb 28	88	26	26	26	26
Mar 31	115	112.92	112.92	112.92	112.92
Apr 30	71	460	460	460	460
May 31	93	76	76	76	76
June 30	106	737.71	737.71	737.71	737.71
July 31	57	133.5	133.5	133.5	133.5
Aug 31	63	109.4	109.4	109.4	109.4
Sept 30	82	330.0	330.0	330.0	330.0
Oct 31	83	102	102	102	102
Nov 30	89	22.0	22.0	22.0	22.0
Dec 31	122	27	27	27	27
Jan 31	136	144.12	144.12	144.12	144.12
Feb 28	38	154.28	154.28	154.28	154.28
Mar 31	52	260	260	260	260
Apr 30	56	478	478	478	478
May 31	59	108	108	108	108
June 30	68	138	138	138	138
July 31	79	873	873	873	873
Aug 31	80	886	886	886	886
Sept 30	89	77	77	77	77
Oct 31	90	255.6	255.6	255.6	255.6
Nov 30	64	173.2	173.2	173.2	173.2
Dec 31	25	57	57	57	57
Jan 31	28	80	80	80	80
Feb 28	70	36	36	36	36
Mar 31	95	174.41	174.41	174.41	174.41
Apr 30	44	59	59	59	59
May 31	110	159.23	159.23	159.23	159.23
June 30	109	173.51	173.51	173.51	173.51
July 31	128	130.5	130.5	130.5	130.5
Aug 31	136	11.882	11.882	11.882	11.882
Sept 30	27	11.27	11.27	11.27	11.27
Oct 31	73	15.77	15.77	15.77	15.77
Nov 30	46	57.40	57.40	57.40	57.40
Dec 31	41	26.8	26.8	26.8	26.8
Jan 31	69	45.0	45.0	45.0	45.0
Feb 28	83	26	26	26	26
Mar 31	123	111.730	111.730	111.730	111.730

Sheet No. _____

Name _____
Address _____Experimental Work in Connection with Machy Tools of Equil. Dumb Slader
#3392

1914	1915	1916	1917
July 31 Brought forward	11 07 10	July 31 Brought forward	4631 19
Aug 30 " "	58 106	Aug 30 " "	9771
Aug 30 " "	2 103	Aug 30 " "	9771
Aug 30 " "	3 100	Aug 30 " "	9766
Aug 30 " "	15 100	Aug 30 " "	9766
Aug 30 " "	17 205	Aug 30 " "	9766
Aug 30 " "	26 1178	Aug 30 " "	9766
Aug 30 " "	77 100	Aug 30 " "	9766
Aug 30 " "	79 571	Aug 30 " "	9766
Aug 30 " "	81 319	Aug 30 " "	9766
Sept 30 " "	90 1178	Sept 30 " "	9766
Sept 30 " "	18 3210	Sept 30 " "	9766
Sept 30 " "	25 952	Sept 30 " "	9766
Sept 30 " "	28 150	Sept 30 " "	9766
Sept 30 " "	31 232	Sept 30 " "	9766
Sept 30 " "	36 10	Sept 30 " "	9766
Sept 30 " "	38 155	Sept 30 " "	9766
Sept 30 " "	41 230	Sept 30 " "	9766
Sept 30 " "	41 315	Sept 30 " "	9766
Sept 30 " "	41 158	Sept 30 " "	9766
Sept 30 " "	60 38	Sept 30 " "	9766
Sept 30 " "	75 21	Sept 30 " "	9766
Sept 30 " "	103 10	Sept 30 " "	9766
Sept 30 " "	115 07	Sept 30 " "	9766
Sept 30 " "	115 155	Sept 30 " "	9766
Sept 30 " "	9 121	Sept 30 " "	9766
Sept 30 " "	31 131	Sept 30 " "	9766
Sept 30 " "	67 11	Sept 30 " "	9766
Sept 30 " "	69 12	Sept 30 " "	9766
Sept 30 " "	72 100	Sept 30 " "	9766
Sept 30 " "	80 723	Sept 30 " "	9766
Sept 30 " "	9 21	Sept 30 " "	9766
Sept 30 " "	10 90	Sept 30 " "	9766
Sept 30 " "	108 31	Sept 30 " "	9766
Sept 30 " "	109 42	Sept 30 " "	9766
Sept 30 " "	36 155	Sept 30 " "	9766
Sept 30 " "	133 20	Sept 30 " "	9766
Sept 30 " "	136 176	Sept 30 " "	9766
Sept 30 " "	150 229	Sept 30 " "	9766
Sept 30 " "	124 112	Sept 30 " "	9766
Sept 30 " "	124 51	Sept 30 " "	9766
Sept 30 " "	138 104	Sept 30 " "	9766
Sept 30 " "	2 22	Sept 30 " "	9766
Sept 30 " "	27 31	Sept 30 " "	9766
Sept 30 " "	30 301	Sept 30 " "	9766
Sept 30 " "	71 613	Sept 30 " "	9766
Sept 30 " "	140 22	Sept 30 " "	9766
Sept 30 " "	116 155	Sept 30 " "	9766
Sept 30 " "	114 107	Sept 30 " "	9766
Sept 30 " "	171 140	Sept 30 " "	9766
Sept 30 " "	156 171	Sept 30 " "	9766
Sept 30 " "	12 126	Sept 30 " "	9766
Sept 30 " "	46 109	Sept 30 " "	9766
Sept 30 " "	20 108	Sept 30 " "	9766

Sheet No. _____

Name _____
Address _____Experimental Work in Connection with Machy Tools of Equil. Dumb Slader
#3392

1914	1915	1916	1917
Apr 30 Brought forward	67 715	Apr 30 Brought forward	9771
Apr 30 " "	81 10	Apr 30 " "	9771
Apr 30 " "	91 20	Apr 30 " "	9771
Apr 30 " "	51 112	Apr 30 " "	9771
Apr 30 " "	129 21	Apr 30 " "	9771
Apr 30 " "	135 17	Apr 30 " "	9771
Apr 30 " "	101 101	Apr 30 " "	9771

Sheet No. _____

Name _____
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Sheet No. _____

Name _____
Address _____

Experiment on acquiring Condensate for Hydrocarbon Residue
#3716

55. V. 100

55A

1916			1917			
Aug 30	Lawson	9.5	Aug 30	W Edman	9.15.0	92.42.7
Sept 30	"	9.0	Sept 30	"	9.7.78	171.08
Oct 31	"	8.5	Oct 31	"	9.3.71	45.06
	"	8.4	Nov 20	"	9.6.27	1.37.9
	"	4.4				
	"	1.15				
Nov 30	"	1.05				

Sheet No. _____

Name
Address

Sheet No.

Name ..
Address ..

Experimental Work on Battery Trays
43625

...*W. W. W.*

... 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681,

Name
Address

Name.....
Address.....

Experimental Work on Carbolis 43075

Mar 31 Donker 3

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		a	11.5

[illegible]

Apr 20	1	252
May 31	1	243

June 20	179
	251

Out 21	11	78
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Nov 30	Income	10621
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[illegible]

Mar. 31. 31. The Edison Inc. 980

Gift 30	"	19896
Mar 31	"	10031

June 30	"	1914
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Oct 31		10510
Nov 30	Transfer	38

[illegible][illegible]

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[illegible]

This process blurs and swirls is necessary on shorts used in French devices. It must run with the grain in the shorts. Shorts processed like this will not break the bands and will make your look even flat.

Sheet No.

Name

Address

Sheet No.

Name

Address

Engineering Supervisors, Edmund Kenna Technical Institute

1899

1898		1899	
Sept 30	Lumber	93	94
Oct 31	"	90.00	62.125
"	"	327	1000
"	"	152	1000
Nov 30	"	197	50.000
"	"	51	1000
"	"	212	1000
Dec 31	"	19	60.000
"	"	118	73
"	"	96	52.1
"	"	300	30.00
"	"	226	777.68
Jan 31	"	1	76
"	"	39	5.99
"	"	13	19.66
"	"	95	2.11
Feb 29	"	185	777.68
"	"	30	80.00
"	"	37	24.00
"	"	54	2.00
"	"	57	3.05
Mar 31	"	176	148.344
"	"	9	576.72
"	"	16	10.50
"	"	37	20.00
"	"	57	15.00
"	"	71	10
"	"	86	13.82
"	"	86	3.56
"	"	108	15.00
"	"	110	3.50
"	"	112	2.00
Apr 30	"	119	641.555
"	"	17	10.00
"	"	36	14.55
"	"	37	5.65
"	"	118	121.14
"	"	118	11.24
"	"	51	10.50
"	"	67	11.15
"	"	83	7.00
May 31	"	96	1475.71
"	"	10	3.00
"	"	49	3.70
"	"	50	1.097
"	"	57	1.312
"	"	17	5.88
"	"	61	2.20
"	"	92	2.88
"	"	110	6.88
"	"	124	2.60
"	"	135	16.63
"	"	102	10.70

Total

Address

Name Engineering Supervision Eison Thoro Witer
Address 3990

3490

1916		1153.02		10820.37	
June 30	oucher	1	50.00	30	E. Hays M.R.
		23	300.75	31	W. Conacher
		25	3.50		
		26	61.50		E. Hays M.R.
		27	1.00		
		28	1.25		
		29	75.00		
		100	146.50		
July 31	"	3	126.50		
		26	44.75		
		27	1.00		
		28	25.50		
		29	12.50		
		117	46.00		
		120	31		
		124	1.85		
		130	33.00		
		132	100.00		
			10820.37		

Sheet No.

Name _____

Address

Experimental Work on Diet Records (212)

(2013)

[illegible]

Year	Month	Day	Time	Location	Remarks
1916	Jan	31	10:30	San Jose	156
			24		
			25		
			39		
			31		
			92		
			97		
			168		
			177		
			184		
			46		
			56		
			74		
			120		
			131		
			212		
			1		
			122		
			218		
			226		
			39		
			100		
			148		
			30		
			71		
			96		
			117		
			120		
			126		
			25		
			30		
			34		
			112		
			118		
			96		

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Exposition of New Record Mfg. Div.
 11101

1916

Month	Year	Number	1	493	March 31	Number	13	26
			1	137			303	26
			23	137			1121	26
			24	3071			1121	26
			25	148			1121	26
			26	6170			1121	26
			27	351			1121	26
			28	140			1121	26
			29	140			1121	26
			30	140			1121	26
			31	140			1121	26
			32	140			1121	26
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			139	140			1121	26
			140	140			1121	26

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Equipment of Dredge Mould Making Line

List

1911		1912	
Mar 31	Number	Mar 31	266 Dredge Moulding
"	56	"	1126
"	109	"	1126
"	119	"	1126
"	9	"	1126
"	110	"	1126
"	111	"	1126
"	112	"	1126
"	113	"	1126
"	114	"	1126
"	115	"	1126
"	116	"	1126
"	117	"	1126
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"	119	"	1126
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"	121	"	1126
"	122	"	1126
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"	176	"	1126
"	177	"	1126
"	178	"	1126
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"	196	"	1126
"	197	"	1126
"	198	"	1126
"	199	"	1126
"	200	"	1126

Sheet No. _____

Name _____
Address _____

Sheet No. _____

Name _____
Address _____

Experimental Iron-on-Sleeve Mould Making - you - today - Aug 24/11

1911

Mar 31	119	11455	Mar 31	11455	Mar 31	11455	11455
Apr 31	120	11455	Apr 31	11455	Apr 31	11455	11455
May 31	121	11455	May 31	11455	May 31	11455	11455
Jun 31	122	11455	Jun 31	11455	Jun 31	11455	11455
Jul 31	123	11455	Jul 31	11455	Jul 31	11455	11455

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Address _____

Sheet No. _____

Name _____

Address _____

Edwin Eric Hedberg Blank Would. Coast
Hers

1916		1917		1918		1919		1920	
Mar 31	Humboldt	86	15	Mar 31	Tetapoda	86	15	Mar 31	Tetapoda
		109	15	Mar 31	Urethra	86	15	Mar 31	Urethra
		119	10	Mar 31	Urethra	86	15	Mar 31	Urethra
Apr 30		67	10	Apr 30		114	15	Apr 30	
		94	10	Apr 30		114	15	Apr 30	
		74	10	Apr 30		114	15	Apr 30	
May 31		135	10	May 31		114	15	May 31	
June 30		101	10	June 30		114	15	June 30	
		125	10	June 30		114	15	June 30	

Address

Sheet No.

Name _____

Address

Experiment in Extracting Potash from Bleemle #4025

68

[illegible]

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Experimental Orchestra
#1156

69

1946		1947		1948		1949	
<i>Apr. 20</i>	<i>Voucher</i>	35	132.65	<i>Apr. 21</i>	<i>Edmund H. ...</i>	1123.4	1123.92
		38	61.20	<i>May 21</i>	"	1128.1	1128.20
		40	37.64		<i>M. E. ...</i>	1120.6	1120.64
		41	40		"	1120.9	1120.96
		42	55.18	<i>June 30</i>	"	1124.6	1124.66
<i>May 31</i>		44	83.33	<i>July 31</i>	"	1125.0	1125.07
		49	24.00		"	80	80.00
		51	12.50		"		
		72	08		"		
		75	25.0		"		
		82	70.4		"		
		135	1178.24		"		
<i>June 30</i>	<i>...</i>	124	70.56		"		
		53	560		"		
		109	755.76		"		
		112	200		"		
<i>July 31</i>		37	8600		"		
		63	17.21		"		
		64	16.00		"		
		125	722.06		"		

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

70

Experiments on Preparedness
No. 30

1916	Nov. 30	Forwarded	17	1917	100
	"	"	10	17	74
	"	"	91	06	
	"	"	48	51	10
	"	"	129	08	
	May 31	"	125	51	27
	June 30	"	101	78	
	July 31	"	125	13	99

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Engineering Work on Mendocino

1916

Personal

93

May 21

June 20

July 31

94

125

108

123

1917

106

361

522

231

61

29 36 5. Mend. Co. 11 476

31 " " " 11 522

30 " " " 11 551

31 " " " 11 551

31 " " " 11 551

370.00

511.03

235.51

61

Sheet No. _____

Name _____
Address _____

Sheet No. _____

Name _____
Address _____

Experimental Work on Aniline
H. H. H.

73

1916		1916	
Apr 30	Vacuum 94	11825	Apr 30 M.E. Aniline 11821
May 31	" 105	90	May 31 " " 11824
" 31	" 125	7055	June 30 " " 11826
June 30	" 125	5176	July 31 " " 11827
July 31	" 108	17561	
	" 68	4721	
	" 100	850	
	" 13	2615	
		6029	

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Address _____

Sheet No. _____

Name _____

Address _____

Experimental Work on Rheumatism

1911		1912		1913		1914		1915	
Jan 30	Voucher	96	18322	Apr 29	DR. Chas. D. Smith	Dr. Smith	11475	18322	38416
May 31	"	131	39564	May 31	"	"	11475	"	38416
June 30	"	76	100	June 30	"	"	11475	"	10680
July 31	"	108	10574	July 31	"	"	11475	"	10680
Aug 31	"	28	6558	"	"	"	11475	"	10680
"	"	38	1650	"	"	"	11475	"	10680
"	"	68	11452	"	"	"	11475	"	10680
"	"	100	100	"	"	"	11475	"	10680
"	"	121	33	"	"	"	11475	"	10680
"	"	121	1691	"	"	"	11475	"	10680

Sheet No. _____

Name _____

Address _____

Sheet No. 50

Name _____

Address _____

Experiment on new Dopes for Plating Downs

2273

1911				1911			
Feb 28 To Voucher	102	1,000	Feb 28 By Cash Jan 31	345	3000		
" " " "	103	2000	Mar 31 " " "	360	13215		
Mar 31 " " "	116	633			11215		
" " " "	117	5388					
" " " "	118	4124					
		16215					16215

Thomas A. Edison Jr L 124

1911				1911			
Apr 30 To Voucher	35	2528	Apr 30 By L.M. Inc	409	2885		
" " " "	104	2518	Oct 31 " " "	490	2812		
Oct 31 " " "	20	2518	Nov 30 " " "	5100	15100		
Nov 30 " " "	30	1740	Dec 31 " " "	6900	17350		
Dec 31 " " "	95	1750	Dec 31 " " "	7160	800		
Dec 31 " " "	16	500					
		9490					9490
Nov 30 To Voucher	51	29	Aug 31 By L.M. Inc	7901	29		
Oct 31 " " "	37	1563	Oct 31 " " "	10550	6351		
" " " "	116	216					
" " " "	117	4607					

Sheet No. 51

Name
Address

Theodore Edison L4M

1912	May 31 To Zunker	45	2603	May 31 By L4M Inc	5973
Aug 30	" " "	129	105	Aug 31 " " "	6415
Sept 30	" " "	121	188	Sept 30 " " "	6551
Oct 30	" " "	124	111	Oct 30 " " "	6556
Nov 30	" " "	155	149	Nov 30 " " "	6608
Dec 31	" " "	150	87	Dec 31 " " "	7000
July 28	" " "	124	100	July 28 " " "	7159
			6337		
Mar 31 To Zunker	120	675	Mar 31 By L4M Inc	7498	
Apr 30	" " "	110	686	Apr 30 " " "	7629
June 30	" " "	97	121	June 30 " " "	7646
July 31	" " "	150	327	July 31 " " "	7822
Aug 30	" " "	129	50	Aug 30 " " "	8059
Sept 30	" " "	109	761	Sept 30 " " "	8254
Nov 30	" " "	48	348	Nov 30 " " "	9026
Dec 31	" " "	106	-	Dec 31 " " "	9231
Jan 30	" " "	90	341	Jan 31 " " "	9678
Feb 31	" " "	138	119	Feb 28 " " "	9758
Mar 31	" " "	117	118	Mar 31 " " "	9770
Apr 30	" " "	171	318	Apr 30 " " "	9754
May 31	" " "	208	218	May 30 " " "	1074
June 30	" " "	251	619	June 31 " " "	1076
July 31	" " "	58	1638	July 31 " " "	10773
Aug 31	" " "	50	161		
Dec 31	" " "	176	176		
		5529			

To Zunker

Experimental Work on Co. L4M

1913	Mar 31 To Zunker	21	2201
" " "	" " "	50	937
" " "	" " "	105	1800
" " "	" " "	118	596
" " "	" " "	120	600
Apr 30	" " "	130	618
" " "	" " "	140	1803
" " "	" " "	31	3320
May 31	" " "	114	7100
June 30	" " "	118	7100
July 31	" " "	122	15145
" " "	" " "	51	3385
" " "	" " "	57	1349

Sheet No.

Name
Address

Experimental Work on Motorcycle Battery J13287

1913	Mar 31 To Zunker	120	11637	Mar 31 By L4M Inc	7498	11637
Apr 30	" " "	110	900	Apr 30 " " "	7498	900
May 31	" " "	110	1326	May 31 " " "	7498	1326
June 30	" " "	110	1326	June 30 " " "	7498	1326
July 31	" " "	110	1326	July 31 " " "	7498	1326
Aug 30	" " "	110	1326	Aug 30 " " "	7498	1326
Sept 30	" " "	110	1326	Sept 30 " " "	7498	1326
Oct 30	" " "	110	1326	Oct 30 " " "	7498	1326
Nov 30	" " "	110	1326	Nov 30 " " "	7498	1326
Dec 31	" " "	110	1326	Dec 31 " " "	7498	1326

1913

Experimental Work on Nickel Hydroxide

1913	Mar 31 To Zunker	120	900	Mar 31 By L4M Inc	7498	900
Apr 30	" " "	110	1326	Apr 30 " " "	7498	1326

Sheet No. _____

Name _____
Address _____Equip with Speed Limit Service 2 motor Cycles
4366

1934		1935		
EDMUND DONNER, ELKHART, IND., U.S.A.		EDMUND DONNER, ELKHART, IND., U.S.A.		
June 30	Donner 106	2164	June 30 Edmund Donner 8970	2164
July 31	" 136	1178	July 31 " 9069	1423

Engineering Work & Material for New Kineto Steep

1934		1935		
July 31	Bray & Son 109	1887	July 31 By D. B. Inc. Serv. 9104	60713
	Donner 50	275	Aug 30 " 9174	4674
	" 75	152	Oct 30 " 9775	6250
	" 89	340	Oct 31 " 9368	3795
	" 114	08	Nov 30 " 9461	5070
	" 122	44		
	" 125	1520		
	" 136	56487		
	" 39	760		
	" 72	522		
	" 78	377		
	" 79	510		
	" 80	11		
	" 90	46492		
	" 95	21		
	" 75	6119		
	" 11	66		
	" 87	3669		
	" 109	2070		
Aug 30				
Sept 30				
Oct 31				
Nov 30				

Aug 30

Sept 30

Oct 31

Nov 30

Sheet No. _____

Name _____
Address _____

Edward Steep, E.E.

1934		1935		
Nov 30	Donner 117	116	Dec 30 S. Hill Serv 1554	1016
	" 130	2805	Dec 30 " 10740	3749
	" 114	2047		
	" 102	840		
	" 226	628		

Experiments on Repayments

1935		1936	
Dec 31	Launcher	28	240
	"	26	20
	"	276	11,325
	"	24	1500
Jan 31	"	39	301
	"	125	360
	"	109	175
	"	111	381
	"	118	350
	"	118	761
	"	128	800
	"	130	76
	"	148	6137
	"	16	3000
	"	28	107
	"	29	86
	"	30	1401
	"	35	120
	"	50	122
	"	57	70
	"	98	250
	"	112	28
	"	120	04
	"	126	163350
	"	21	90
	"	38	90
	"	119	5000
	"	119	1700
Mar 31			

Nov 30

B. 270

Sheet No. _____

Name _____

Address _____

Experimental on Escaping of *Salmonella* from *Chlamydia*

39.05

1915		1916		1917	
Dec. 31	London	26	630	Dec. 31	Edinburgh
1916		27	123.5	Jan. 31	1851
Jan. 31		28	170	Feb. 29	1870
		29	3250	Mar. 31	11065
		30	100		
		31	61		
		32	588		
		33	100		
		34	07		
		35	123.5		
Feb. 29		36	30.81		
		37	30		
		38	237		
		39	17.14		
		40	271		
		41	248		
		42	5800		
		43	50		
		44	26		
		45	23377		
Mar. 31		46	18.50		
		47	21.06		
		48	4.16		
		49	2.22		
		50	2.22		

Received 6. 29. 15

Lambert, W. C. with special *Myxomatosis*

1915		1916		1917	
Dec. 31	London	26	500	Dec. 31	Edinburgh
1916		27	587	Jan. 31	1851
		28	21	Feb. 29	1870
		29	276	Mar. 31	11065
Feb. 29		30	100		
		31	61		
		32	588		
		33	100		
		34	07		
		35	123.5		
		36	30.81		
		37	30		
		38	237		
		39	17.14		
		40	271		
		41	248		
		42	5800		
		43	50		
		44	26		
		45	23377		
		46	18.50		
		47	21.06		
		48	4.16		
		49	2.22		
		50	2.22		

Sheet No. _____

Name _____

Address _____

Experimental work on *Salmonella*

39.05

1915		1916		1917	
Jan. 31	London	26	630	Jan. 31	Edinburgh
1916		27	123.5	Feb. 29	1851
Feb. 29		28	170	Mar. 31	1870
		29	3250		11065
		30	100		
		31	61		
		32	588		
		33	100		
		34	07		
		35	123.5		
		36	30.81		
		37	30		
		38	237		
		39	17.14		
		40	271		
		41	248		
		42	5800		
		43	50		
		44	26		
		45	23377		
		46	18.50		
		47	21.06		
		48	4.16		
		49	2.22		
		50	2.22		

Lambert, W. C. with special *Myxomatosis*

1915		1916		1917	
Jan. 31	London	26	500	Jan. 31	Edinburgh
1916		27	587	Feb. 29	1851
Feb. 29		28	21	Mar. 31	1870
		29	276		11065
		30	100		
		31	61		
		32	588		
		33	100		
		34	07		
		35	123.5		
		36	30.81		
		37	30		
		38	237		
		39	17.14		
		40	271		
		41	248		
		42	5800		
		43	50		
		44	26		
		45	23377		
		46	18.50		
		47	21.06		
		48	4.16		
		49	2.22		
		50	2.22		

Name

Address:

Experimental Work on Cues for Reading Horn Labels
\$40.80

Sheet No.

Name _____

Address

Name *Engineering Supervision in Connection with Potash*
Address *Plant Potash Lake, #4277*

1916		1916	
July 29	127	July 29	127
"	126	"	126
"	119	"	119
"	118	"	118
"	117	"	117
"	116	"	116
"	115	"	115
"	114	"	114
"	113	"	113
"	112	"	112
"	111	"	111
"	110	"	110
"	109	"	109
"	108	"	108
"	107	"	107
"	106	"	106
"	105	"	105
"	104	"	104
"	103	"	103
"	102	"	102
"	101	"	101
"	100	"	100
"	99	"	99
"	98	"	98
"	97	"	97
"	96	"	96
"	95	"	95
"	94	"	94
"	93	"	93
"	92	"	92
"	91	"	91
"	90	"	90
"	89	"	89
"	88	"	88
"	87	"	87
"	86	"	86
"	85	"	85
"	84	"	84
"	83	"	83
"	82	"	82
"	81	"	81
"	80	"	80
"	79	"	79
"	78	"	78
"	77	"	77
"	76	"	76
"	75	"	75
"	74	"	74
"	73	"	73
"	72	"	72
"	71	"	71
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"	69	"	69
"	68	"	68
"	67	"	67
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"	36	"	36
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"	32	"	32
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"	30	"	30
"	29	"	29
"	28	"	28
"	27	"	27
"	26	"	26
"	25	"	25
"	24	"	24
"	23	"	23
"	22	"	22
"	21	"	21
"	20	"	20
"	19	"	19
"	18	"	18
"	17	"	17
"	16	"	16
"	15	"	15
"	14	"	14
"	13	"	13
"	12	"	12
"	11	"	11
"	10	"	10
"	9	"	9
"	8	"	8
"	7	"	7
"	6	"	6
"	5	"	5
"	4	"	4
"	3	"	3
"	2	"	2
"	1	"	1
"	0	"	0

Edison United Dis. Operating
1916

1916

1916

Feb 29	Voucher 123	2000.00	Feb 29	LTM Inv	10,910.00	2000.00
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Engineering supervision on Benzadine
#4314

5



✓

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Sheet No.

Name _____

Address _____

Madeline Edison

1890		1891		1892	
Nov	30	To Balance	1446	May	30
				By L M Larr	3287
					370

Experimental Work to Develop Arrangement of Parts for Motor Cycle
1912 (1913?) Eng. Library

Apr 30	To Balance	144	216	Apr 30	By B B B L	216
May 31	"	104	320	May 31	"	216
May 31	"	104	424	May 31	"	1375
May 31	"	106	530	May 31	"	2393
Apr 30	"	116	646	Apr 30	"	3060
May 31	"	112	758	May 31	"	3770
June 30	"	115	873	June 30	"	902
July 31	"	127	1000	July 31	"	1041
Aug 30	"	106	1106	Aug 30	"	1930
Sept 30	"	81	1187			
Oct 30	"	90	1277			

Experiment on Insulating Belly

Date		Description		Amount		Balance			
Nov	30	2	December	141	1,963	Nov 30 By B.B. Co. Inv	8227	1,963	
	Dec 31	"		43	641	Dec 31	" " "	8227	1,963
	1914	"		156	18028	Feb 28	" " "	8261	1,963
Feb	28	"		134	1,963				

Sheet No.

Name _____
Address _____
City _____

Electric Coach Corp. Ltd.

1913		1914		1915		1916	
Nov 30	20	In Extension	1142	312	Nov 30	By L. H. Low	1200
Dec 31		General Expense	425	425			750
			700				750

Edison's Kinetophone Co. 24777
1913

Year	Month	Day	Time	Location	Amount	Total
1890	Jan	30	10:00	1000	1000	1000
1891	Jan	31	12:00	50	50	50
1892	Jan	31	9:00	70	70	70
1893	Jan	31	12:00	50	50	50
1894	Jan	31	10:00	1000	1000	1000
1895	Jan	31	12:00	50	50	50
1896	Jan	31	9:00	70	70	70
1897	Jan	31	12:00	50	50	50
1898	Jan	31	10:00	1000	1000	1000
1899	Jan	31	12:00	50	50	50
1900	Jan	31	9:00	70	70	70
1901	Jan	31	12:00	50	50	50
1902	Jan	31	10:00	1000	1000	1000
1903	Jan	31	12:00	50	50	50
1904	Jan	31	9:00	70	70	70
1905	Jan	31	12:00	50	50	50
1906	Jan	31	10:00	1000	1000	1000
1907	Jan	31	12:00	50	50	50
1908	Jan	31	9:00	70	70	70
1909	Jan	31	12:00	50	50	50
1910	Jan	31	10:00	1000	1000	1000
1911	Jan	31	12:00	50	50	50
1912	Jan	31	9:00	70	70	70
1913	Jan	31	12:00	50	50	50
1914	Jan	31	10:00	1000	1000	1000
1915	Jan	31	12:00	50	50	50
1916	Jan	31	9:00	70	70	70
1917	Jan	31	12:00	50	50	50
1918	Jan	31	10:00	1000	1000	1000
1919	Jan	31	12:00	50	50	50
1920	Jan	31	9:00	70	70	70
1921	Jan	31	12:00	50	50	50
1922	Jan	31	10:00	1000	1000	1000
1923	Jan	31	12:00	50	50	50
1924	Jan	31	9:00	70	70	70
1925	Jan	31	12:00	50	50	50
1926	Jan	31	10:00	1000	1000	1000
1927	Jan	31	12:00	50	50	50
1928	Jan	31	9:00	70	70	70
1929	Jan	31	12:00	50	50	50
1930	Jan	31	10:00	1000	1000	1000
1931	Jan	31	12:00	50	50	50
1932	Jan	31	9:00	70	70	70
1933	Jan	31	12:00	50	50	50
1934	Jan	31	10:00	1000	1000	1000
1935	Jan	31	12:00	50	50	50
1936	Jan	31	9:00	70	70	70
1937	Jan	31	12:00	50	50	50
1938	Jan	31	10:00	1000	1000	1000
1939	Jan	31	12:00	50	50	50
1940	Jan	31	9:00	70	70	70
1941	Jan	31	12:00	50	50	50
1942	Jan	31	10:00	1000	1000	1000
1943	Jan	31	12:00	50	50	50
1944	Jan	31	9:00	70	70	70
1945	Jan	31	12:00	50	50	50
1946	Jan	31	10:00	1000	1000	1000
1947	Jan	31	12:00	50	50	50
1948	Jan	31	9:00	70	70	70

Electric Welding Machine 34.9

Dec 31	Transfer	15	50	Jan 31	Transfer	1388	268
1914	"	139	212	Feb 28	"	1501	520
Jan 31	"	124	570	Mar 28	"	1649	3161
May 28	"	112	341	May 31	"	1703	3906
Mar 31	"	106	296	May 31	"	1895	1509
May 26	"	105	1509				1509

Name _____
Address _____Experimental Work on *San Oxide*
12594

12594			12594			
Apr 31	Lumber	116	1050	Apr 31	E & M Iron	8396
May 31	"	127	7151	May 31	"	8570
June 31	"	134	6390	June 31	"	8577
July 31	"	106	12400	July 31	"	10716
Aug 31	"	26	10716	Aug 31	"	10717
Sept 31	"	37	6499	Sept 31	"	10713
Oct 31	"	37	6499	Oct 31	"	9008
Nov 31	"	116	5750	Nov 31	"	9077
Dec 31	"	216	1230	Dec 31	"	9770
Jan 31	"	115	9946	Jan 31	"	9771
Feb 31	"	106	9946	Feb 31	"	
Mar 31	"	38	08	Mar 31	"	
Apr 31	"	136	4803	Apr 31	"	
May 31	"	90	1071	May 31	"	
June 31	"	201	355	June 31	"	

Experimental Work on *Battery* 12594

July 28	Voucher	131	8377	July 28	G. S. L. Co. Iron	8760
Mar 31	"	31	60	Mar 31	"	8873
"	"	46	26	Apr 30	"	8110
"	"	106	48351	May 31	"	8871
Apr 30	"	72	280	June 30	"	8763
"	"	116	17612	July 31	"	9061
May 31	"	101	18	"	"	
"	"	103	1673	"	"	
"	"	115	14523	"	"	
June 30	"	25	99	"	"	
"	"	27	35	"	"	
"	"	71	576	"	"	
"	"	106	120	"	"	
July 31	"	31	24119	"	"	
"	"	35	191	"	"	
"	"	136	136	"	"	
"	"	136	14720	"	"	
"	"		1	"	"	

Engineering Work 177 Meters for *Mar. Kinetic* 12594

Mar 31	Lumber	66	175	Mar 31	J. O. B. Inc. Br.	8702
	"	206	16714	Apr 30	"	1792
Apr 30	"	116	31351	May 31	"	8907
May 31	"	98	4299	June 30	"	8900
	"	61	4299	July 31	J. O. B. Inc. Br.	57
	"	115	57789			
June 30	"	47	1842			
	"	60	66			
	"	71	10			
	"	92	246			
	"	93	59			
	"	97	2050			
	"	106	71454			
July 31	"	34	895			
	"	35	700			
	"	38	272			
	"	1	136			
			54651			

Name _____
Address _____Experimental Work on *S. E. Myers* 12594

12594		12594		12594		12594	
July 31	Lumber	89	115	July 31	E & M Iron	9126	2796
Aug 31	"	136	266	Aug 31	"	9278	7740
Sept 31	"	16	490	Sept 31	"	9390	2641
Oct 31	"	71	84	Oct 31	"	9390	2641
Nov 31	"	77	170	Nov 31	"	9487	9487
Dec 31	"	81	15	Dec 31	"		
Jan 31	"	90	6913	Jan 31	"		
Feb 31	"	25	2871	Feb 31	"		
Mar 31	"	28	116	Mar 31	"		
Apr 31	"	95	16391	Apr 31	"		
May 31	"	41	16	May 31	"		
June 31	"	42	268	June 31	"		
July 31	"	105	9431	July 31	"		

Experimental Work on *Electric* 12594

July 31	Lumber	106	10521	July 31	E. & S. B. on Inv	9070	10521
Aug 30	"	90	12410	Aug 30	"	9215	12410
Sept 30	"	95	6715	Sept 30	"	9311	6515

Experimental Work on *Electric* 12594

Sept 30	Lumber	18	30	Sept 30	Lumber	9110	30
Oct. 31	"	44	6400	Oct 31	"	9115	15496
"	"	114	10	Nov 30	"	9198	3411
"	"	115	9086	Nov 30	Wainaker	N	6400
Nov 30	"	105	101				
		109	260				
Apr 179	E. S. C. Cash	11175	6400				

Sheet No.

Name
AddressExperimental Work for Record Eging Machines
#3749

1914		1915		1916		1917	
Sept 30	Voucher	90	1237	Sept 30	Medicine Bros	908.1	1237
Oct 31	"	115	1458	Oct 31	"	917.6	1458
Nov 30	"	109	219	Nov 30	"	916.7	219

Sheet No.

Name
AddressElectroplating One Copper Pan
#1167

1916		1917	
Apr 30	Voucher	91	817.24
			29.80.5
			11.28
			817

Experimental Work for Low Battery

1914		1915		1916		1917	
Nov 30	Voucher	106	191	Nov 30	Edison Bros	949.3	334.1
Dec 31	"	109	2150	Dec 31	"	963	1060
July 27	"	20	1000	July 27	"	991.7	71

Theodore Edison L. & M.

1916		1917	
Apr 30	Voucher	91	124.75
May 31	"	10	1.21
July 31	"	68	1.31
		120	2.58
		126	2.23
			127.10

Experimental Work for Starter Battery

1915		1916		1917		1918	
July 31	Voucher	286	2127	July 31	E. S. B. & Son	1070.1	2812
Aug 31	"	107	2451	Aug 31	"	1079.0	2906
	"	117	21	Sept 30	"	1083.9	2114.6
	"	221	3670	Oct 31	"	1076	6123
Sept 30	"	150	76	Nov 30	"	1053.5	4373
	"	148	11	Dec 31	"	1070.1	7508
	"	199	11				
	"	200	20673				
Oct 31	"	37	48				
	"	121	30				
	"	177	67.14				
Nov 30	"	80	2103				
	"	157	33				
	"	212	10871				
Dec 31	"	160	16				
	"	126	1678				
		30 60					

Experimental Work for Iron Anode

1916		# 4130				
June 30	Voucher	105	350 - June 30	Edison E. S. B.	1151.5	350.00
July 31	"	132	240 - July 31	" " "	11673	240.00

June 30	1918	Vaner	108	9.61	June 30	1916	TA Ebu	Contol	114.88	9.61
---------	------	-------	-----	------	---------	------	--------	--------	--------	------

Engineering Supervision of Laboratory

1916				
June 30	Voucher	108	71.61	
July 31	"	91	175.00	
	"	131	21.38	
	"	132	84.38	
			291.37	

Engineering Supervision in con. with Univ. of S.P. Butler

July 31	Voucher	132	Sub 111	July 31 PGE Inc. Cont. 2000	Sub 111
---------	---------	-----	---------	-----------------------------	---------

[illegible]

Sheet No. _____

Name _____

Address _____

Film Hand, Edition of New

#2131

1921

July 25

Mar 31

Conner

1147

171

1500

37.50

July 25

By J. H. Edwards

1500

37.50

Mar 31

1500

37.50

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Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Film Slant, Equipment of Rev.
1933

1931		1932		1933	
July 28	147	541.9	July 28	By Station	772
Mar 21	46	255	Mar 21	"	985
"	97	575	Apr 30	"	989
"	171	813.43	May 21	"	10018
Apr 21	26	724	June 30	"	10128
"	70	370	July 31	"	10230
"	87	240	Aug 31	"	10323
"	97	120.77	Sept 30	"	10418
May 31	135	515	Oct 31	"	10517
"	139	23	Nov 30	"	10615
"	283	141.56	Dec 31	"	10705
June 30	324	10	July 29	"	10817
"	111	08	"	"	11022
"	168	31			11133
"	251	180.87			11244
July 31	202	341			11355
"	46	11			11466
"	47	67			11577
"	78	62			11688
"	93	980			11799
"	75	13520			11910
Aug 31	29	84			12021
"	41	750			12132
"	43	1251			12243
Sept 30	271	21136			12354
"	86	26			12465
"	116	500			12576
Oct 31	200	12526			12687
Nov 30	177	8828			12798
"	242	955			12909
"	157	28			13020
Dec 31	272	10521			13131
"	200	276			13242
"	226	9896			13353
July 31	181	8117			13464
July 29	30	120			13575
"	126	1542			13686

This account is not to be used in payment of taxes and is to be used for the purpose of showing the balance of the account at the end of each year. It is not to be used for the purpose of showing the balance of the account at the end of each year.

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

52

Five Pound Biller # 3297

1913

Mar 31 To Banker 120

1913

225 Mar 31 By J.D. & Son Dr 7979

225

Five Pound Biller 13333

1913

Apr 30 To Banker 140

1913

225 Apr 30 By J.D. & Son Dr 7399

225

L Q

X

Sheet No. _____

Name _____

Address _____

First Round Filler

1936

Sheet No. _____

Name _____

Address _____

H. Ford L. 1911

1913 May 31 To Lumber 111.2 225 May 31 By P. B. Edm. Decker 7526 225

First Round Filler

1913 June 30 To Lumber 125 675 June 30 By P. B. Edm. Decker 7571 675

First Round Filler

1913 July 31 To Lumber 129 225 July 31 By P. B. Edm. Decker 7503 225

First Round Filler

1913 July 31 To Lumber 129 225 July 31 By P. B. Edm. Decker 7504 225

Second Round Filler

1913 Aug 31 To Lumber 116 1200 Aug 31 By General Expense 7504 51.11
Sept 30 " " 31 800
Dec 31 " " 159 129.61
2000 1,000

BY THE FILLER, 1913

Nov. 30. To Lumber 129 1000
1911 461

Nov. 30. By L. M. Decker 8258 1000
461

1461

1911 Ford Filler Mending Machines, Patterns, etc.
1915 3877

Mar. 31. Lumber 171 1000

Mar. 31 By L. M. Decker 8258 1000

1000

Sheet No. _____

Name _____
Address _____*Langray for Dr. J. P. Pelt*
13924

Sheet No. _____

Name _____
Address _____*Francis J. J. of Map. Edison Co's. Water Systems*
1141267

1914		1915		1916		1917	
June 30	10145	June 30	10145	June 30	10145	June 30	10145
July 31	10139	July 31	10139	July 31	10139	July 31	10139

1918		1919		1920		1921	
June 30	10145	June 30	10145	June 30	10145	June 30	10145
July 31	10139	July 31	10139	July 31	10139	July 31	10139

1918		1919		1920		1921	
June 30	10145	June 30	10145	June 30	10145	June 30	10145
July 31	10139	July 31	10139	July 31	10139	July 31	10139

1922		1923		1924		1925	
June 30	10145	June 30	10145	June 30	10145	June 30	10145
July 31	10139	July 31	10139	July 31	10139	July 31	10139

Sheet No. _____

Name
AddressName for Chart of Reciprocal Equivalents
4336

1912	Aug 31 Voucher 132	64	Aug 31 to Dec 31 1912 11770	64
------	--------------------	----	-----------------------------	----

Sheet No. 104

Name
Address

Turnace Lopy #3061

1912	Aug 31 to Voucher 129	368	Aug 31 to Sept 30 1912 6576	368
------	-----------------------	-----	-----------------------------	-----

Fisture # 3,111

1912	Sept 30 Voucher 121	57	Sept 30 to Aug 31 1912 6576	57
1912	Oct 31 " " "	325	Oct 31 to " " " 6576	325
		382		382

Field Force #2128

1912	Nov 30 Voucher 122	325	Nov 30 to Dec 31 1912 6576	325
------	--------------------	-----	----------------------------	-----

Sheet No. _____

Name _____
Address _____*Boxing up Little Board on Garage*
12744

1874		1875		
Jan 31 To Lumber	322	1523	Jan 31 By General Expense 263	3610
" " "	143	100		
" " "	140	258		
Feb 28 " " "	90	1296		
" " "	116	50		
" " "	124	425		
		3610		
Mar 31 To Lumber	115	1250	Dec 31 By General Expense 754	12318
" " "	118	604		
" " "	129	2452		
Apr 30 " " "	120	1466		
May 31 " " "	59	1425		
Oct 30 " " "	49	1564		
		1564		

Subal Handker

#3231

1913	1913
Jan 31 To Lumber 100	712 Jan 31 Lumber 492 712

Filler

#3256

1875		1876	
Jan 31 To Lumber	150	By Jan 31 By M. Lumber	498
Feb 28 " " "	124	226 Feb 28 " " " "	7130
			225

Sheet No. _____

Name _____
Address _____*Timoth 12 Castings Pattern*
#3561

1875		1876		
Nov 30	To Lumber 115	1187	Nov 30 By E. B. Lumber 5229	1189

Timoth 1400 Bins Cops. Slings
#3574

1913		Cannon 1400 Round Engle Black		1913		23574	
Dec 31	Vouchers	116	2357	Dec 31	By E. S. B. to Dr	8318	2357

J. Francis
#3576

1901		J. Francis		L. F. M.	
May 31	Lumber	115.	60	May 31 By L. F. M. Lumber	8929
					60

Five Gallons Solution
#3697

1912
July 31 Lumber 136 262
1914
July 31 By L&B Lumber 9106 262

Flexible Coupling
18948

1912
July 31 Lumber 251 337
1914
July 31 " 77 300
" 43 300
" 406 100

1915
July 31 Lumber 114 1606
1916
July 31 By L&B Lumber 9771 1606

1915
Aug 31 Lumber 86 1600
Sept 30 " 105 1500
1916
Aug 31 L&B Lumber 10377 1600
Sept 30 " 10377 1500

1915
Mar 31 Lumber 37 16
Apr 30 " 171 6453
" 714 3135

Frames + 4 Bridges
#3835

1916
Mar 31 By L&B Lumber 9506 6099
Apr 30 " 9878 3135

1915
Aug 31 Lumber 721 1050
Sept 30 " 200 600
1916
Aug 31 L&B Lumber 10377 1050
Sept 30 " 10377 600

Truss & Slabbing
#3894

Sheet No. _____

Name _____

Address _____

Personal Expense
1906

1906		1906		1906	
Apr 30 Voucher	32	123	Apr 30 M. H. E. E. 11200	123	123
"	34	124	May 31 " " 11200	124	124
"	48	125	" " " " 11200	125	125
"	67	126	" " " " 11200	126	126
"	79	127	" " " " 11200	127	127
"	91	128	" " " " 11200	128	128
"	96	129	" " " " 11200	129	129
May 31	5	130	" " " " 11200	130	130
"	12	131	" " " " 11200	131	131
"	14	132	" " " " 11200	132	132
"	16	133	" " " " 11200	133	133
"	18	134	" " " " 11200	134	134
"	20	135	" " " " 11200	135	135
"	22	136	" " " " 11200	136	136
"	24	137	" " " " 11200	137	137
"	26	138	" " " " 11200	138	138
"	28	139	" " " " 11200	139	139
"	30	140	" " " " 11200	140	140

B 110

Personal 1907

1906		1906		1906	
Apr 30 Voucher	40	141	Apr 30 E. C. E. E. 11200	141	141
"	44	142	May 31 " " 11200	142	142
"	48	143	June 30 " " 11200	143	143
"	56	144	July 31 " " 11200	144	144
"	96	145	" " " " 11200	145	145
May 31	130	146	" " " " 11200	146	146
June 30	140	147	" " " " 11200	147	147
"	140	148	" " " " 11200	148	148

E. C. E. E.

1906		1906		1906	
May 31 Voucher	135	149	May 31 E. C. E. E. 11200	149	149
June 30	140	150	June 30 " " 11200	150	150
July 31	132	151	July 31 " " 11200	151	151

Sheet No. _____

Name _____

Address _____

Feed Roll
1906

1906		1906		1906	
Jan 31 Voucher	26	152	Jan 31 J. H. E. E. 11200	152	152
"	146	153	Feb 29 " " 11200	153	153
Feb 29	176	154	" " " " 11200	154	154

Bour Bearings Complete #11-89

1906		1906		1906	
May 31 Voucher	52	155	May 31 J. H. E. E. 11200	155	155
"	121	156	June 30 " " 11200	156	156
June 30	58	157	" " " " 11200	157	157
"	62	158	" " " " 11200	158	158
"	107	159	" " " " 11200	159	159
"	108	160	" " " " 11200	160	160

Rexilla Couplings #11-88

1906		1906		1906	
May 31 Voucher	72	161	May 31 R. E. E. E. 11200	161	161
"	74	162	June 30 " " 11200	162	162
"	83	163	July 31 " " 11200	163	163
"	84	164	" " " " 11200	164	164
"	125	165	" " " " 11200	165	165
June 30	87	166	" " " " 11200	166	166
"	108	167	" " " " 11200	167	167
July 31	122	168	" " " " 11200	168	168

Quantal Experiments

No. 46

From Dr. Van der

11	1470	June 30	M. C. Lee	11527	1702/18
31	20120	July 31	"	11547	1702/18
37	1271				
60	274				
76	19				
101	400				
109	47602				
4	15075				
47	600				
50	3012				
26	156				
111	1450				
116	70				
122	11162				
	1011				

Paul Powder Plant Loading Machine

July 31 Van der

8	1202	July 31	M. C. Lee	11526	1702/18
81	1702				
122	1678				
	1702				

Punch Lighting Storage Battery System

July 31 Van der

10	10	July 31	E. S. B. Co.	11527	1702/18
132	132				

Gasoline Dies -1-
 Cylindrical Experiment #116
 Graphiting Machine #195-2-
 Elmore W. C. 3-
 Labor Material for
 Greenley J. D.
 Labor & Matl for } 50
 Graphiting Machine } 4
 for Hand Record } 2002
 Goldstein J.
 L & Matl for } 50
 Green W. C.
 Labor & Matl for } 51
 Graphiting Machine #2002
 Goodwin C. } 51
 L & M for
 Greenberg R. } 52
 L & M for } 52
 Glass axles #2354
 Graphite Throats #2355
 Glass axles #2406
 Gear Drive to Chicago #2600
 Grooving Machine #2601
 Grinding Machine #2602
 Green Br. Lorry 101
 Gas Trap #2764
 Gas Pump #2834
 Grinder #2925
 Glass cups (24) #2991
 Grinder #3001
 Greenhouse #3002
 Glass Axles #3003
 General Labor Exp. #1003
 Glass Lins #3004
 Sand & Shells #3005
 Grinding Apparatus of Motor #3006
 Green R. L. M. 50
 Grinding Machine #3007
 Grinding Machine #3008
 Grinding Machine #3009
 Grinding Machine #3010
 Glass Vials #3011
 General Efficiency #3012
 Gear #3013

Sheet No. 2

Name
Address

W. E. Gilmore

Labor & Material for

SEE INSTRUCTIONS ON REVERSE OF COVER

1908

Mar 31 To Voucher

69

333

Mar 31 By R.M. Service

59

2869

Apr 30

71

2536

Apr 30

114

114

4372

" " "

74

450

May 11

" "

" "

189

7085

" " "

76

320

June 30

" "

" "

258

7245

" " "

78

320

July 31

" "

" "

324

7313

" " "

76

35

Aug 31

" "

" "

393

7825

" " "

80

410

Sept 30

" "

" "

425

8255

" " "

83

55

Mar 31

" "

" "

923

8256

" " "

84

2031

May 31

" "

" "

1680

1868

" " "

86

941

July 31

" "

" "

919

1887

May 31

52

3158

Oct 30

" "

" "

9220

476

" " "

58

75

" "

" "

" "

" "

" "

" " "

80

1870

" "

" "

" "

" "

" "

June 30

79

1871

" "

" "

" "

" "

" "

July 31

80

1743

" "

" "

" "

" "

" "

Aug 31

56

1715

" "

" "

" "

" "

" "

Sept 30

76

18250

" "

" "

" "

" "

" "

Mar 31

71

18158

" "

" "

" "

" "

" "

May 31

111

18578

" "

" "

" "

" "

" "

Sept 30

136

280

" "

" "

" "

" "

" "

Address

Address

FOR OTHER COPIES, SEE NUMBER 40, PAGE 11

1911		1911	
Feb 28 To Voucher	104.	Feb 28 By L.M. Long	354.
May 31 "	117.	May 31 "	418.
Aug 31 "	119.	Aug 31 "	468.
Sept 30 "	119.	Sept 30 "	480.
Oct 31 "	5.	Oct 31 "	495.
Dec 29 "	144.	Dec 29 "	559.
	169.		169.

Glass Pins # 3249

1912		class		1913		# 3249	
Feb 29	To Banker	124	154	Mar 28	To Banker	722	1500
Apr 30	" Banker	140	154	Apr 30	To Banker	726	1849
May 31	" "	112	110	May 31	" "	743	1110
June 30	" "	125	588	June 30	" "	789	585

Sheet No. _____

Name _____

Address _____

Grind 5 Letters

#3453

FOR DEPOSIT IN REGISTER, N.Y.

1913

Sept. 30 To Balance 109

187

1913

Sept. 30 By Balance Inv 4990

187

Sheet No. _____

Name _____

Address _____

Grind 5 Letters

FOR DEPOSIT IN REGISTER, N.Y.

1913

June 30 To Balance 106

115

1913

June 30 By Balance Inv 9028

95

1913

Oct. 31 " 9294

167

1913

Grinding Committee of Motor

1913

1913

Nov 30 To Balance 142

807

Nov 30 By Balance Inv 8222

807

General Efficiency Study

1913

1913

May 31 To Balance 104

104

June 30 To Balance 2858

2858

June 30 To Balance 10734

10734

June 30 To Balance 32

32

June 30 To Balance 10372

10372

June 30 To Balance 10372

10372

June 30 To Balance 10372

10372

June 30 To Balance 10372

10372

June 30 To Balance 10372

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June 30 To Balance 10372

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June 30 To Balance 10372

10372

June 30 To Balance 10372

10372

June 30 To Balance 10372

10372

Sheet No. _____

Name _____

Address _____

*Grinding Saw Blade*Sheet No. 102

Name _____

Address _____

Eas Trap

2764

July 31 Voucher	131	July 31 1912	July 31 1912	11 64
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1912	June 31 20 Voucher	86	36	1912	June 31	Aug 28 1912	5557	8920
138			5557					8920
			5557					

Grinder

2925

1912	May 31 20 Voucher	127	1912	May 31 20	Aug 28 1912	5557	5557
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*2 1/2 Counter Sides for 1/2 in. Dia. Bush 1 B**Glass cups (24)*

2991

1912	May 31 20 Voucher	140	1912	May 31	Aug 28 1912	5557	275
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Sheet No. 103Name
AddressGreenhouse
3098

Sheet No. _____

Name
AddressGeneral Efficiency Work
25722

1912
Sept 30 To Voucher 121 78.50
1912
Sept 30 To E. M. 6529 78.50

Class After 4 2019
1912
Jan 30 To Voucher 121 82.25
1912
Jan 31 " " 152 270.00

General Sales Co L.M.
1912
Jan 31 To Voucher 151 146.00
1912
Jan 31 To E. M. 1000 270.00

1912
Apr 30 Voucher 90 257.09
Apr 30 " 28 900
Apr 30 " 95 565.17
Apr 30 " 100 172.50
Apr 30 " 109 172.50
Apr 30 " 150 146.00
Apr 30 " 158 500.00
Apr 30 " 30 42.50
Apr 30 " 147 535.00
May 31 " 77 331.58
Apr 30 " 171 656.05
Apr 30 " 70 609
May 31 " 70 2050
May 31 " 55 571.66
May 31 " 293 126.50

1912
Apr 30 Voucher 16 20
Apr 30 To E. M. 1000 270.00

Grid Sheet for Submarine 25722
1912
Apr 30 Voucher 252 1473
May 31 " 293 170
Apr 30 To E. M. 1000 270.00
May 31 " 1000 120

Sheet No. _____

Name _____

Address

Gas Analysis Experiment

1894

1890		1891		1892		1893	
May 31	December	155	614	May 31	End of Year	10001	6058
"	"	44	36	"	"	10092	605
"	"	55	373	June 30	"	10100	1744
"	"	159	50	"	"	10101	194
"	"	293	2930	July 31	"	10109	585
June 30	"	68	244	Oct 31	"	10121	1016
"	"	168	24	Nov 30	"	10124	140
"	"	251	795				1140
July 31	"	216	216				
Oct 31	"	221	685				
"	"	35	15				
"	"	86	55				
"	"	105	10				
"	"	177	1536				
Nov 30	"	12	1140				

Massachusetts Drill Hole

[illegible]

Year 1885

July 79	Leinster 126	546	July 79	Leinster 126	546
---------	--------------	-----	---------	--------------	-----

Hooper G.H.	50	Hallgren J.C. & M.	103
Labor + Material for		House Lighting Controls	56
Hurter Emil		Copier	\$32.21
Labor + Material for	50	Hoffmann G. & M.	104
Harris St. J.		Holberg L. & M.	\$3.60
Labor + Mat'l for	51	Hord Kuthalla	\$3.45
Hardenberg Waz	# 20.4	Hopper Gualde	\$3.65
Holland P.W. C.		Hardwood Paper Chicago	\$3.97
Labor + Mat'l for	51	Horne & H. L. H.	\$10.5
Hornpaas C.		Hopland H.H.	57
Labor + Mat'l for	50	Hoyes R. L. & M.	\$3.75
Hord Kuthalla Kings	# 20.6	Hard Rubber	\$37.95
Hardenberg pieces on		3 Hard Rubber sets for	\$1.25
Back for Salt Machine	# 271	Hardenberg Job	\$3.10
Heat Range to	4	Hand Soap	\$40.77
product Vapor	# 20.8		
Units to fish this day	5		
applied for 2.8 H.P. motor	# 117		
David G. M.			
L + M for	52		
Hoptman M. C.			
L + M. for	53		
Home Model Kineto	# 21.3		
Hannley Dressel			
Labor + Mat'l for	53		
Holten Deloz			
L + M.	7		
Harper F.			
L + M.	54		
Hand Shaving Mach.	8		
for Bus. Phone Records	\$2.5		
Harper Chag			
L + M.	54		
Handels for Signal Box	\$2.50		
Hutchinson M. R.	\$2.50		
Holtzman	L + M 100		
Heating Plans	# 26.7		
House Lighting	# 27.6		
Home P. K. Machines	# 26.9		
Hopper	# 28.5		
Harpes J. L. & M.	101		
House Lighting	\$30.11		
Halogen Products	12		
Hydrate Dept	\$2.73		
Hudson, Buralomb	\$2.96		
Halogen Products	\$50.41		
Healer - Dress	\$3.37		
Holmes W. & M.	102		
Hending	\$3.63		
Home Lighting	100		
Control Cabinet	\$2.52		

Sheet No. _____

Name
AddressHome P.K. Machine
#2909

1921			1922		
May 31	Brought forward	6,157.71	May 31	Brought forward	6,157.71
	Balance	4.54		By M. C. Smith	6,157.71
		103		"	6,157.71
		105		"	6,157.71
		107		"	6,157.71
		115		"	6,157.71
June 30		27		"	6,157.71
		71		"	6,157.71
		91		"	6,157.71
		98		"	6,157.71
July 31		106		"	6,157.71
		35		"	6,157.71
		38		"	6,157.71
		135		"	6,157.71
		136		"	6,157.71
Aug 30		77		"	6,157.71
		80		"	6,157.71
		81		"	6,157.71
		87		"	6,157.71
		89		"	6,157.71
		90		"	6,157.71
Sept 30		25		"	6,157.71
		28		"	6,157.71
Oct 31		41		"	6,157.71
		44		"	6,157.71
		99		"	6,157.71
		113		"	6,157.71
		115		"	6,157.71
Nov 30		67		"	6,157.71
		100		"	6,157.71
		106		"	6,157.71
		109		"	6,157.71
Dec 31		134		"	6,157.71
		152		"	6,157.71
July 28		147		"	6,157.71
		116		"	6,157.71
		117		"	6,157.71

Sheet No.

Name _____

Address

Sheet No. 11

Name _____

Address

House Lighting Ltr # 3011

April 10	To 1	584	1912	May 20	By C. B. Co. Inc	5784	15551
" "	" "	99	249	June 21	" "	" "	12961
" "	" "	142	14718	July 11	" "	" "	26100
May 31	" "	99	15133	July 31	" "	" "	57178
" "	" "	140	12885	Aug 11	" "	" "	63155
June 29	" "	145	5776	Sept 30	" "	" "	6479
July 31	" "	99	57125	Oct 31	" "	" "	1601
" "	" "	122	96	Nov 30	" "	" "	6715
" "	" "	140	76	Dec 31	" "	" "	23451
" "	" "	92	21921	Jan 31	" "	" "	6906
Aug 31	" "	125	130	Feb 28	" "	" "	6240
" "	" "	125	135				16912
" "	" "	129	25217				16912
Sept 30	" "	125	304				
" "	" "	87	567				
" "	" "	121	14016				
Oct 31	" "	81	91118				
" "	" "	97	190				
" "	" "	139	120				
Nov 30	" "	119	21537				
" "	" "	80	261				
" "	" "	13	664				
Dec 31	" "	124	32726				
" "	" "	115	5961				
" "	" "	91	255				
" "	" "	155	16913				
" "	" "	154	" "				
1913	" "	115	115				
Jan 31	" "	49	59				
" "	" "	53	400				
" "	" "	112	100				
" "	" "	143	25				
" "	" "	155	13163				
Feb 28	" "	59	60				
" "	" "	124	16563				
			172300				
1913			1913				
Mar 31	To 1	120	5526	Mar 31	By C. B. Co. Inc	7201	8526
Apr 30	" "	142	119	Apr 30	" "	" "	7383
June 30	" "	40	2576	May 30	" "	" "	7571
July 30	" "	116	116	Aug 30	" "	" "	7726
			172300				283

Sheet No. _____

Name
Address

Sheet No. _____

Name
Address

M. R. Hutchinson LHM

16

1912

Sept 20 To Lumber

31

91

93

94

96

98

109

111

111

111

111

111

111

111

111

111

111

111

111

111

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1912

Sept 20 To Lumber

31

91

93

94

96

98

109

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1912

Sept 20 To Lumber

31

91

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Sheet No.

Name
Address

M R Hutchison L & M

Sheet No. 54

Name
Address

J. Harper L & M for

June 30	Drught Forward	97	534.44	June 30	Drught Forward	97	563.62
July 31	Voucher	100	534.44	July 31	L & M Sur	97	563.62
July 31		34	534.44	July 31		97	563.62
July 31		38	97.19	July 31		97	563.62
July 31		40	1000	July 31		97	563.62
July 31		42	1970	July 31		97	563.62
July 31		46	573	July 31		97	563.62
July 31		90	246	July 31		97	563.62
July 31		100	97	July 31		97	563.62
July 31		105	246	July 31		97	563.62
July 31		136	534.44	July 31		97	563.62
Aug 30		71	100	Aug 30		97	563.62
Sept 30		90	166	Sept 30		97	563.62
Oct 31		93	309	Oct 31		97	563.62
		95	1924	Oct 31		97	563.62
		100	100	Oct 31		97	563.62
		110	90	Oct 31		97	563.62
		115	2702	Oct 31		97	563.62
		109	100	Oct 31		97	563.62
		120	101	Oct 31		97	563.62
		138	878	Oct 31		97	563.62
		139	272	Oct 31		97	563.62
		140	1073	Oct 31		97	563.62
		141	35	Oct 31		97	563.62
		142	200	Oct 31		97	563.62
		143	158	Oct 31		97	563.62
		144	08	Oct 31		97	563.62
		145	156	Oct 31		97	563.62
		146	2	Oct 31		97	563.62
		147	68	Oct 31		97	563.62
		148	141	Oct 31		97	563.62
		149	246	Oct 31		97	563.62
		150	27	Oct 31		97	563.62
		151	330	Oct 31		97	563.62
		152	97	Oct 31		97	563.62
		153	123	Oct 31		97	563.62
		154	100	Oct 31		97	563.62
		155	100	Oct 31		97	563.62
		156	171	Oct 31		97	563.62
		157	345	Oct 31		97	563.62

1910	116	31	31	31
200 31 To Voucher	116	31	31	31
200 28 " " "	104	31	31	31
200 28 " " "	104	31	31	31

Chas Harper L & M

1911	116	16	16	16
200 31 To Voucher	116	16	16	16
200 30 " " "	123	16	16	16
200 30 " " "	123	16	16	16

57

Sheet No. _____

Name _____

Address _____

W. S. Holland LHM

1898

July 31. Voucher 111.
Aug 31. LHM Inv 8015

1898

July 31. LHM Inv 8019.
Aug 31. " 8015

1898

July 31. LHM Inv 8019.
Aug 31. " 8015

Sheet No. _____

Name _____

Address _____

Harris Farm, Glendale, Ariz. 11159

THE UNITED STATES OF AMERICA

July 31. Voucher 132

July 31. H. S. L. Inv. 11155

11155

1898

July 31. Voucher 103.
Aug 31. " 172

L. B. Hayes LHM

July 31. LHM Inv 8610.
Aug 31. " 11159

11159

Sheet No. _____

Name _____

Address _____

Sheet No. 100

Name _____

Address _____

Handles for special signal Boxer #2380

1911	apl 30 To Voucher	113	73	1911	apl 30 By the Boxer Boxer	218
		114	115			
			517			218

J. Holdermann Linn

1911	June 30 To Voucher	63	1911	June 30 By the Boxer Boxer	84
------	--------------------	----	------	----------------------------	----

Heating Plant (Change) #2675

1911	Oct 31 To Voucher	89	12.80	1912	Mar 30 By the Boxer Boxer	74.21
		112	4.13			
		115	5.17			
		117	6.00			
		119	5.49			
			74.21			74.21

Sheet No. _____

Name _____
Address _____

House Lighting Controller Cabinet #3252mm

1913	July 25	To Lumber	69	1913	July 25	By J. B. Linn	1291	1291
	"	"	124		"	"	1179	1179
							1179	1179
Mar 31	To Lumber	29		78	Mar 31	By J. B. Linn	7291	781

1913	July 25	To Lumber	124	1913	July 25	By J. B. Linn	1179	1179
Aug 31	"	"	124		"	"	1179	1179
Mar 31	"	"	124		"	"	1179	1179

1913	July 25	To Lumber	124	1913	July 25	By J. B. Linn	1179	1179
	"	"	124		"	"	1179	1179
	"	"	124		"	"	1179	1179

Sheet No. _____

Name _____
Address _____

A. Hoffman L & M.

1913	July 31	To Lumber	129	1913	July 31	By L & M Linn	7804	1262
	"	"	129		"	"	7804	1262

1913	July 31	To Lumber	129	1913	July 31	By L & M Linn	7805	325
Aug 31	"	"	116		"	"	7805	225

1913	Aug 31	To Lumber	116	1913	Aug 31	By L & M Linn	7809	776
	"	"	116		"	"	7809	776

Sheet No. _____

Name _____

Address _____

Looper Guards
#3287

1913		1913		1913	
Sept 30	To Lumber	109	1120	Sept 30	By E.S.B. Co. Inv 7990
				420	

1913		1913		1913	
Nov 30	To Lumber	111	333	Nov 30	By E.S.B. Co. Inv 8275
				333	

1913		1913		1913	
May 31	To Lumber	115	115	May 31	By L.M. Inv 8529
	"			58	May 31 " " 1930 58

Sheet No. _____

Name _____

Address _____

Hard Rubber
12/29

1913		1913		1913	
Sept 30	Lumber	95	1126	Sept 30	By E.S.B. Co. Inv 9311
					1126

1914		1914		1914	
Oct 31	Lumber	95	3076	Oct 31	By E.S.B. Co. Inv 9311
	"	111	110	Oct 31	" " 9311
					110

1915		1915		1915	
Feb 27	Lumber	9	1071	Feb 27	By E.S.B. Co. Inv 9311
	"	95	248	Mar 31	" " 9311
	"	104	65		
	"	90	55		
	"	131	1024		
	"	171	4194		

Sheet No. _____

Name _____

Address _____

Installing New Printing & Dark Room in Balance Meter Room
#3614

1921

1921		1922		
Jan 31	Banker	68	201	Dr. 31. Balance of 30.00
"	"	126	10	
"	"	127	2063	
Feb 28	"	55	170	
"	"	131	355	
			355	

1922

Install Printing System & Change Light in 1914 Dr. 31. 31.00

Oct 31	Banker	115	850	Oct 31. Ed. 31. 31.00
			6657	

Sheet No. _____

Name _____

Address:

Installation, Maintenance of Storage Batteries
for Auxiliary Lighting 13889

Apr 30	Donner	140	327
"	"	68	506
"	"	77	1141
"	"	254	3258
July 31	"	17	3275
Sept 30	"	36	3311
Nov 30	"	36	3347
May 31	"	50	3397

Installation of Machinery 1915 \$388.00

Apr 30	Drumher	202	30838	Apr 30	Eduard S.B. On Dr	9743	30838
--------	---------	-----	-------	--------	-------------------	------	-------

Sheet No. 102

Nas

Address

R. Izler Lm

MAGNET TAPES - 1912									
1912					1912				
Feb 29 206046	144		03	Feb 29 206046	550			03	

Iron Loading Machine #2217

1918				1913			
Jan 31	To Lumber	100	9331	Mar 31	Income	6952	9336
Feb 28	" "	124	2042	Apr 30	Balance Inv	7071	2246
			37740				2246
1913				1913			
Mar 31	To Lumber	120	9600	Mar 31	B. & S. Inv	7211	4604
Apr 30	" "	140	3433	Apr 30	" "	7352	3437

Iron Loading # 3229

1913	Jan 31	to Komer	155	1591	1913	Jan 31	Invoice	6955	1594
	Feb 28	" "	124	556		Feb 28	SSS Co Inv	7075	5463
				7457					7457

Sheet No. _____

Name
Address

Installation of electric head & tail sleds by the 1st Dec
 1916 251

1916	Dec 31	Transfer	26	32.00	1916	Dec 31	Balance from transfer 1916	54.11
			55	2.78				
			276	14.03				

Mar Dec 1916 277.77

1916	Dec 31	Transfer	217	26	Dec 31	277.77	1916	Dec 31	26
------	--------	----------	-----	----	--------	--------	------	--------	----

Johnson A.	50
Labor & mat'l for	
Jenkinson A. B.	50
Labor & mat'l for	
Jacobs J.	100
Labor & mat'l for	
Jarman J.	100
L & M. for	
Joh Crane	22.57
Jacobs Oscar L.M.	100
Johnson Operating	101

Sheet No. 100

Name
Address

Joseph Jacoby Linn.

1909

Oct 30 To Voucher

53

1909

Oct 20 By Leg. Inv.

1055

75

J. Jarman Linn.

1910

Jan 31 To Voucher

115

1910

Jan 31 By Leg. Inv.

1761

20

Oct 31 " Invoice

3526

Oct 31 " Voucher

96

20

40

110

Oscar Jacoby Linn.

1911

Jan 31 To Voucher

62

1911

May 31 By Leg. Inv.

4150

110

May " " " "

145

June 27 " " "

6120

33

Oct 30 To Voucher

152

1913

Oct 30 " Leg. Inv.

7820

1460

Oct 31 " " "

152

Oct 30 " " "

5163

96

Oct 30 " " "

3

Oct 30 " " "

9959

24

Nov 31 " " "

30

Nov 31 " " "

1151

93

40

119

Sheet No. _____

Name _____

Address _____

Johnston Operating

1911

1912

June 30	Donner	133	57	Apr 30	Johnston Bank	1016	1843
July 31	"	167	159	July 31	"	1084	11416
"	"	21	1071	Aug 31	"	1088	33421
"	"	172	126	Oct 30	"	1081	5517
Aug 31	"	70	23503	Oct 31	"	1081	1165
"	"	113	218	Nov 30	"	1085	1215
Sept 30	"	167	252	"	"		29499
Oct 31	"	18	1094				
"	"	170	71				
Nov 30	"	10	122				
"	"	121	91				
"	"	101	50				
"	"	108	101				

1912 Nov 159 paid out

1913

Jan 30	Donner	145	3357	Jan 31	Bank	1088	5357
Feb 29	"	176	1778	Feb 29	"	1077	1778
Mar 31	"	30	35	Mar 31	"	1103	55

1913 Jan 159 paid out

1914

Jan 31	Donner	119	1851	Jan 31	Bank	1108	1851
Apr 30	"	16	30	Apr 29	"	1114	30

Kopp Jr Paul }
 Labor & Matl for } 100
 Kneile E. }
 Labor & Matl for } 100
 Kinetoscope } 1
 Phonograph } 2127
 Kinetoscope } 2
 motor drive } 2153
 Kibin to burn time } 2432
 Kinetophone } 2435
 Key-way E. } 265
 Kambhuth R. S. } 101
 Koller & Lem } 101
 Klumba J. } 101
 Knives } 102
 Kennedy A. M. L. M. } 102

Sheet No. _____

Name _____
Address _____

Work On Kinetophone #2435

1911

June 30

Lumber

5

156.2

June 30

By T.H.E. Inc. Inc.

8976

3217.11

July 31

.

29

410.1

July 31

"

9080

2461.8

August 31

.

166

3019.9

August 31

"

9156

1581.9

September 30

.

34

921.9

Sept 30

Lumber

9246

1277.55

October 31

.

35

1391

Oct 31

"

43

2400

November 30

.

38

181

By T.H.E. Inc. Inc.

9350

1863

December 31

.

89

608

Nov 30

"

9414

197

January 31

.

116

1500

Jan 31

"

9506

2881

February 28

.

126

21832

Feb 28

"

9760

290

March 31

.

56

75

March 31

"

11791

1724.1

April 30

.

78

11791

April 30

"

1724.1

2625.1

May 31

.

79

12625

May 31

"

10636

1111

June 30

.

80

1000

June 30

"

701

28

July 31

.

81

10796

July 31

"

10796

1325

August 31

.

82

113

August 31

"

117

3084

September 30

.

21

921

Sept 30

"

100

451

October 31

.

67

100

Oct 31

"

152

2431

November 30

.

126

152

Nov 30

"

117

2961

December 31

.

152

2431

Dec 31

"

117

2961

Sheet No. _____

Name _____

Address _____

Sheet No. 100

Name _____

Address _____

Paul Kopp Jr

1908

Sept 30 To Voucher	96	1908	Sept 30 By L & M Ins	478	30
--------------------	----	------	----------------------	-----	----

S. Knile

1909	June 30 To Voucher	84	1909	June 30 By L & M Ins	1162	33
July 31	" "	108	July 31	" "	1250	48
Aug 31	" "	108	Aug 31	" "	1340	56
Nov 31	" "	102	Sept 30	" "	1938	32
Apr 30	" "	118	Apr 30	" "	1984	16
June 30	" "	90	June 30	" "	2219	13
						178

Key-Way Etc

2634

1911	Sept 30 To Voucher	108	1911	Sept 30 By E. B. & S. Ins	1050
" "	" "	109			1050
					1050

Sheet No. 101Name
Address

R. S. Kornbluth Lom

Sheet No. 102Name
Address

Knives #3068

1911		1911	
Dec 30 To Voucher	23	Dec 30 By Lom Inv 526	115
Jan 31 " "	31	Jan 31 " " 535	67
			182

1911		1911	
Aug 31 To Voucher	129	Aug 31 By L.B.B. 3	6291
			955

E. Kolser Lom

1912		1912	
July 29 To Voucher	148	July 29 By Lom Inv 551	29
Oct 28 " "	40	Oct 28 " " 516	1025
			1086
Apr 30 To Voucher	116	Apr 30 By Lom Inv 538	20

A. M. Kennedy

1912		1912	
July 31 To Voucher	125	July 31 By L.M. Inv	7829
Oct 31 " "	117	Oct 31 " " "	8164
Nov 30 " "	137	Nov 30 " " "	8290
Dec 31 " "	55	Dec 31 " " "	8410
Jan 31 " "	110	Jan 31 " " "	8584
Feb 30 " "	120	Feb 30 " " "	10195
Mar 31 " "	167	Mar 31 " " "	11501
Apr 30 " "	155		

J. Klauke

1912		1912	
Mar 30 To Voucher	127	Mar 30 By L.M. Inv	5563
June 29 " "	30	June 29 " " "	6121
			126

Key Link Mill Rd

1911		1911	
July 31 To Voucher	108	July 31 By L.M. Inv	10883
Aug 29 " "	176	Aug 29 " " "	10997
			4846

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Ly M to make 1 Experimental Enveloping Machine
#3468

Dec/31	Balance forward	100	117.54	1912	Dec/31	Balance forward	100	117.54
	"	110	170		Jan/31	W. E. S. Inc. Dr	41	91.92
	"	146	20		"	"	41	113
	"	154	140		July 28	W. E. S. Inc. Dr	45.89	67.80
	"	156	250.10		"	"	46.47	113.63
	"	159	1.63		Mar/31	"	470.16	262.35
1911	"	"	2.4		"	"	474.7	371.25
Jan/31	"	96	1.60		Apr/30	"	470.3	370.74
"	"	114	36		July 30	"	497	372.21
Feb/28	"	127	90.4		July 31	"	9100	377.3
"	"	172	263		Aug/30	"	9772	274.87
Mar/31	"	134	147.89		Sept/30	"	9773	274.85
"	"	45	370.2					
"	"	90	56.8					
"	"	106	257.57					
Apr/30	"	25	117.54					
"	"	36	151.94					
"	"	37	3.38					
"	"	74	3.30					
"	"	93	3.36					
"	"	110	0.14					
"	"	116	163.37					
May/31	"	16	200					
"	"	101	17					
"	"	102	104.63					
"	"	103	11.81					
"	"	107	204					
"	"	114	0.6					
"	"	115	372.16					
June/30	"	3	48.53					
"	"	27	210					
"	"	32	82.0					
"	"	50	66					
"	"	97	48					
July/31	"	106	522.72					
"	"	1	42.7					
"	"	31	43					
"	"	34	50					
"	"	35	196.1					
"	"	38	52					
"	"	75	20.56					
"	"	89	9.50					
"	"	114	336					
"	"	119	204					
"	"	135	37					
"	"	136	316.37					
Aug/30	"	78	73.24					
"	"	79	2.81					
"	"	80	2.2					
"	"	90	347.84					
Sept/30	"	25	1.20					
"	"	28	4.1					
"	"	29	17.34					

Sheet No.

Name
AddressL.M.'s make's Experimental Edison Seizing Machines
13468

1897		1898		1899	
Sept 30	Brough & Howard	106.67	Sept 30	Brough & Howard	106.57
Oct 31	"	130	Oct 31	Edison & Howard	130
Nov 30	"	1093	Nov 30	"	9460
July 28	"	116	July 28	"	9770

Sheet No.

Name
AddressL.M. Maintaining Storage Batteries
13908

1897		1898		1899	
Jan 31	Brough	127	Jan 31	Brough & Howard	1030
July 28	"	134	July 28	"	1390

Sheet No. _____

Name
Address

Sheet No. _____

Name
Address

L. T. M. to Build Crusting Machine

F3236

15

1911		1912	
Jan 31	127	Jan 31	2625
Feb 28	131	Feb 28	1414
Mar 31	10	Mar 31	150
"	116	"	07
"	106	"	2033
Apr 30	13	"	561
"	13	"	650
"	56	"	1118
"	93	"	216
"	101	"	47
"	116	"	374
May 31	89	"	50
"	79	"	26
"	68	"	55
"	103	"	310
"	115	"	2245
June 30	87	"	79
July 31	106	"	346
"	35	"	69
"	135	"	04
"	136	"	202
Aug 31	79	"	12
"	80	"	79
"	89	"	04
"	90	"	144
Sept 30	95	"	180
Nov 30	109	"	2232
Dec 31	152	"	549
		"	11

2625
 1414
 30192
 567
 300
 370
 2245
 79
 346
 69
 04
 202
 12
 79
 04
 144
 180
 2232
 549
 11

Sheet No. _____

Name
Address

Sheet No. _____

Name
Address

L. M. T. Makes tools for Swamp Belles

1936

16

Lumber

		1936					
July 28	Vanhook	28	32.16	July 28	W. E. Snider	87.77	62.79
"	"	29	31.23	"	"	86.46	12.80
"	"	58	11	Mar 31	"	86.85	13.80
"	"	90	7.70	Apr 30	"	17.89	9.75
"	"	113	2.52	May 31	"	89.01	43.80
"	"	134	55.69	June 30	"	89.11	13.88
Mar 31	"	31	2.48	Oct 31	"	93.62	1.75
"	"	46	11	Dec 31	"	95.57	12.69
"	"	156	143.12				
Apr 30	"	116	107.34				
May 31	"	103	330				
"	"	125	14.50				
June 30	"	106	132.88				
Oct 31	"	44	1.73				
Dec 31	"	136	1203.99				

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Lt M. for Erecting Carbonic Acid Plant

#3770

1911

Aug 30

Income

1

550

Aug 30 70 Edwards - 9182

1089.27

25

144

" 9281

306.96

35

2016

" 9281

366.98

38

220

" 9282

366.98

47

2295

46

10

63

1944

71

88

71

14960

82

2000

90

2449.2

1

175

3

58

6

355

9

1288

16

670

22

65

24

907

25

701

26

3110

27

16213

32

1338

39

560

41

23100

44

160

47

1961

59

7908

64

11244

66

545

75

462

76

1600.1

82

4746.10

91

521

95

2072.89

8

1142

13

693

14

2000

35

2396

40

613

44

776

45

2454

46

590

47

310

48

5460

55

10313

60

643

61

161

71

2244

72

7000

76

410

81

5494

83

1842

88

1064

99

14044

99

207364

Sheet No. _____

Name
AddressL & M. for Erecting barbed Acid Sheds
13720

1901		1902		1903	
Oct. 31	Brought Forward	105	107,257	Oct. 31	Brought Forward
		110	70	Nov. 30	Subscribed
		113	109	Dec. 31	"
		115	303		
		118	18,257		
		119	3,10		
		90	27		
		91	11,30		
		6	1,110		
Nov. 30		9	257,80		
		11	16,6		
		13	250		
		14	7,60		
		16	10,290		
		19	37,00		
		21	16,10		
		24	1,47,77		
		25	126		
		26	5,6		
		31	37,100		
		35	800		
		39	2,635		
		46	55,04		
		46	51,13		
		56	14,796		
		57	62,21		
		66	56,376		
		67	11,0		
		87	51,24		
		70	112		
		80	61,112		
		83	2,96		
		85	73,00		
		87	12,33		
		88	55,04		
		92	21,500		
		97	9,63		
		105	2,32		
		106	4,00		
		107	2,07		
		109	60		
		109	442,34		
		3	1,257		
		1	1,257		
		3	39,00		
		3	1,950		
		90	1,41,65		
		27	130		
		28	17,1		
		32	1,11,10		
		37	2,409		
		40	1,485		
		47	53,60		
		48	203,07		
		54	1,180		
			139,148		

Sheet No. _____

Name
AddressL & M. for Erecting barbed Acid Sheds
13720

1901		1902		1903	
Dec. 31	Number	69	1,56,60	Dec. 31	Number
		79	1,44,68	Jan. 31	Subscribed
		80	2,936		
		82	16,00		
		87	66,120		
		83	990		
		104	3,974		
		107	2,076		
		108	55,00		
		111	3,27,77		
		112	1,10		
		114	5,25		
		115	2,80,21		
		117	5,63		
		119	1,50		
		120	1,900		
		126	3,06		
		136	4,16		
		137	2,190,8		
		138	1,06,10		
		139	35		
		141	1,43,126		
		146	50,85		
		150	22,74		
		152	7,19,23		
		3	1,19,23		
		15	226,14		
		21	16,50		
		32	68,00		
		39	22,00		
		40	1,19,74		
		41	1,58,77		
		45	39		
		46	9,91		
		47	15,88		
		48	2,85		
		49	3,97		
		51	3,1,14		
		53	13,68		
		62	7,73,14		
		70	1,66,00		
		77	1,15,84		
		78	976		
		86	500		
		87	2,88,88		
		89	82,13		
		107	600		
		110	7,00,37		
		115	3,300		
		116	1,15,50		
		118	52,00		
		119	1,69,10		
		127	1,18,09		

Sheet No.

Name

Address

L. M. for Erecting Carbolis Acid Plant
19720

1972		2712917	2712917	2712917
Jan 31	Number	134	165	2712917
"	"	136	195	2712917
"	"	138	2712917	2712917
July 28	"	5	1300	2712917
"	"	6	1430	2712917
"	"	9	133568	2712917
"	"	18	970	2712917
"	"	20	12487	2712917
"	"	31	685	2712917
"	"	35	5460	2712917
"	"	41	501	2712917
"	"	51	17433	2712917
"	"	51	46866	2712917
"	"	63	39728	2712917
"	"	70	92	2712917
"	"	71	874	2712917
"	"	75	31476	2712917
"	"	81	232	2712917
"	"	83	13650	2712917
"	"	86	32693	2712917
"	"	88	31700	2712917
"	"	91	12620	2712917
"	"	92	553	2712917
"	"	99	650	2712917
"	"	100	21	2712917
"	"	105	10600	2712917
"	"	147	264976	2712917
"	"	66	208228	2712917
"	"	116	482	2712917
Mar 31	"	3	426	2712917
"	"	18	290	2712917
"	"	20	5120	2712917
"	"	26	1080	2712917
"	"	28	699	2712917
"	"	36	452	2712917
"	"	47	553	2712917
"	"	58	1285	2712917
"	"	60	180	2712917
"	"	62	11037	2712917
"	"	68	3080	2712917
"	"	69	181	2712917
"	"	84	11927	2712917
"	"	63	4065	2712917
"	"	73	2368	2712917
"	"	72	1026	2712917
"	"	86	2000	2712917
"	"	97	261	2712917
"	"	111	1170	2712917
"	"	115	100	2712917
"	"	117	408	2712917
"	"	127	1779	2712917
"	"	135	34300	2712917
"	"	171	722730	2712917

Sheet No.

Name

Address

L. M. for Erecting Carbolis Acid Plant
19720

1972		51130719	51130719	51130719
Apr 30	Number	5	170	51130719
"	"	29	38	51130719
"	"	57	1720	51130719
"	"	70	10	51130719
"	"	75	26866	51130719
"	"	80	170	51130719
"	"	81	5003	51130719
"	"	86	11808	51130719
"	"	87	60	51130719
"	"	88	1130	51130719
"	"	72	1454	51130719

Sheet No.

Name

Address

Sheet No.

Name

Address

Lt. Major Benjamin Smith, with the Manufacturing of Soldiers
New Brunswick 30
1851

19

1850		1851	
Jan 31	London	30	1100
"	"	61	61111
"	"	80	1160
"	"	122	2222
"	"	136	10
"	"	138	35722
"	"	90	26
"	"	147	2619
"	"	147	1311
"	"	5	5
"	"	252	2363
"	"	273	2618
"	"	256	1922
"	"	221	2111
"	"	200	500
"	"	174	500
"	"	212	4301
"	"	226	9566
"	"	126	8250
"	"	119	6211
"	"	135	1222
"	"	101	1366
"	"	122	11621

This account is not to be used for any other purpose than the purpose for which it was made. It is not to be used for any other purpose than the purpose for which it was made.

Name

Address

Name _____
Address _____

L. & M. in connection with the Manufacture of Tools
for the New Type B. D. S. Press. 13813

20

[illegible]

Address

Address

LM-Necessary Repairs to Bldg #212

69.15

Jan 31	Lumber	51
--------	--------	----

Mar 31	171
--------	-----

759 Jan 31 By T. H. Edmond Inc. Inv. 9652

740	Mar 31	9841
31		
81		

1179
315

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

This process hinge and swell is necessary on atheria used in Pressfit devices. It must run with the grain of the paper. Sheets processed like this will not handle the handle and will make your book more flat.

Address _____

Sheet No.

Name _____

Address

SA New The Manufacture of Paraphenylenediamine #3799

1975

1975

Received 10 May 2006; accepted 10 May 2006

Jun 31 Balance from prior
voucher

—Houché.

Jan. 3

By T. A. Edison Inc. Nov. 96.

1,0075

Feb 27

Mar 31

Chapman

May 31

June 20

the process blurs and small is necessary on sheets used in Pressfit devices. It must run with the grain of the paper. Sheet processing like this will not leave the marks and will make your work more effective.

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

24 Mon Automobile for M.R. Hutchinson
 1914 1915

1914		1915	
Mar 31	Lunches	6	10.05
Apr 30	"	8.0	2.25
May 31	"	25.2	43.90
		2	10
		123	3.0
June 30		79.3	37.73
		149	7.22
July 31		237	36.21
Aug 31		21.6	9.05
		79	1.32
Sept 30		221	29.61
		175	1.9
Oct 31		200	23.88
Nov 30		177	26.82
		3.1	2.0
		46	1.5
		48	4.60
		157	27
Jan 31		209	32.46
Jan 31		82	34.17
		92	33.77
		141	40.0
Feb 20		1	45.24
Mar 31		126	10.0
		26	119.26
		57	25.40
		119	20.00
Apr 30	Vouchers	18	85.36
	"	91	8.73
May 31	"	125	40.66
June 30	"	76	35.66
		107	4.50
July 31		106	1.01
		137	42.66
			44.79
			51.55
			100.5
			45.65
			41.13
			46.06
			9.58
			103.44
			32.63
			44.46
			173.74
			43.76
			43.52
			15.87
			35.66
			50.58
			110.7
			61.56
			62.19
			65.19
			7.76
			167.26
			40.57
			11.16

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

L. L. Lumber & M.

1912
May 31 To Lumber 1201913
July 31 By L & M Lumber 76

76

1913
May 31 To Lumber 11.4
July 30 " " 12.2
July 31 " " 11
" " 12.7
" " 12.9

L & M for Repaid on Cameral # 5358
1913
May 31 By L & M Lumber 102.5
July 30 " " " 96.6
July 31 " " " 77.7
" " 70
" " 21.0

84.90
154.18
52
77
70
21.0

May 31 By L & M Lumber 102.5
July 30 " " " 96.6
July 31 " " " 77.7
" " 70
" " 21.0

84.90
154.18
52
77
70
21.0

84.90
154.18
52
77
70
21.0

Sheet No. _____

Name _____

Address _____

L.V.M. To Make To-day for Miami, Fla.
#3368

1979		1973		
May 31. To Lunch	147	1789	May 31. By J.B. Deane 1907	7105
June 30. " "	40	108	June 30. " " " "	7447
" " " "	74	28	July 31. " " " "	7778
" " " "	1200	7934	July 31. " " " "	7910
July 31. " " " "	7	1080	Oct 31. " " " "	7136
" " " "	127	1284	Nov 30. " " " "	8258
" " " "	127	60	Dec 31. " " " "	8382
" " " "	127	5316	Jan 31. " " " "	8194
Aug 30. " " " "	117	3157		85710
Sept 31. " " " "	16	537		35710
" " " "	35	541		
" " " "	36	222		
Nov 30. " " " "	27	20492		
" " " "	6	1670		
" " " "	17	520		
" " " "	45	643		
" " " "	49	340		
" " " "	77	86		
" " " "	137	40		
Dec 31. " " " "	141	36535		
" " " "	46	257		
" " " "	136	106		
1914 " " " "	156	39378		
Jan 31. " " " "	67	01		
" " " "	114	56898		
" " " "	127	15410		
		15718		

1913

L.V.M. To Make over Home R.R. North Cape Camp House
#3368

1913		1912			
June 30 To Lunch	140	812	June 31 By J.B. Deane	7677	843
July 31 " " "	47	30	July 31 " " "	7777	8777
" " " "	14	59	Aug 31 " " "	7711	388
" " " "	73	81	Sept 30 " " "	8020	43
" " " "	129	8461			
Aug 31 " " "	116	535			
Sept 30 " " "	30	43			

Sheet No. _____

Name _____

Address _____

L.V.M. To Cover Expense of Making Necessary Drawing of 1911
#3808

1912		1911			
Sept. 30. To Lunch	111	376200	Sept 30. To Lunch	111	376200
Oct 31. "	200	121111	Oct 30. " "	10524	104111
Nov 31. "	177	7510	Nov 30. " "	10524	7500
Dec 31. "	700	120600	Dec 31. " "	10524	120600
Jan 31. "	276	10836	Jan 31. " "	10524	10836
Feb 31. "	8	781	Feb 29. " "	10524	139111
Mar 31. "	37	212	Mar 31. " "	10524	15041
Apr 31. "	59	1549	Apr 30. " "	11111	1549
May 31. "	74	270	May 31. " "	11111	1549
Jun 31. "	80	590		11111	1549
Jul 31. "	145	10547		11111	1549
Aug 31. "	29	35		11111	1549
Sept 31. "	30	73		11111	1549
Oct 31. "	57	10		11111	1549
Nov 31. "	143	14903		11111	1549
Dec 31. "	119	13745		11111	1549
Jan 31. "	36	776		11111	1549
Feb 31. "	70	300		11111	1549
Mar 31. "	66	1617		11111	1549
Apr 31. "	31	1675		11111	1549
May 31. "	10	1677		11111	1549
Jun 31. "	68	160		11111	1549
Jul 31. "	87	315		11111	1549
Aug 31. "	115	18965		11111	1549
Sept 31. "	19	10999		11111	1549

9 57

L.V.M. To Cover Printing Done #3808

1912		1911			
April 30. To Lunch	96	40150	April 29. To Lunch	11200	40150
May 31. " "	31	189	May 31. " "	11200	46189
June 30. " "	135	46000	June 30. " "	11200	34615
July 31. " "	36	296	July 31. " "	11200	37781
Aug 31. " "	108	36607			
Sept 31. " "	132	27781			

Sheet No.

Name

Address

L. M. Carr Expenses of Making Necessary Drawings

2009

June 30 to 1st	23	206	June 30 to 1st	155	217	67
30	1390	411	31	1164	411	67
41	730				411	67
105	240				411	67
105	197	41			411	67
41	18	57			411	67
46	01				411	67
62	217				411	67
117	41	57			411	67
182	1164	411			411	67

Sheet No. 102

Name

Address

Lecture "H. H. Smith" #3017

1912	May 31	To Voucher	140	1912	May 31	By Edley, Inc.	5854	400
July 31	" "		145	1912	June 29	" "	6021	416
								816

4c Lithium Plant #3045

1912	June 29	To Voucher	145	1912	June 29	By Edley, Inc.	6027	40
July 31	" "		145	1912	July 31	" "	8178	17366
Aug 31	" "		129	1912	Aug 31	" "	6300	6282
								28816

L. M. Maintaining Storage Patterns

1913				1913				3298
Jan 31	To Lumber	155	3143	Jan 31	By B. H. Smith	1000	3458	
Feb 28	" "	35	2400	Feb 28	" "	7132	5692	
" "	" "	121	3292					
			9130				9130	
Mar 31	To Lumber	120	1688	Mar 31	By B. H. Smith	9277	1688	
Apr 30	" "	37	1180	Apr 30	" "	9412	3031	
" "	" "	140	2551	May 31	" "	9529	2342	
May 31	" "	142	2342	June 30	" "	9680	1776	
June 30	" "	125	1776	July 31	" "	9808	3681	
July 31	" "	129	3681	Aug 31	" "	9928	1162	
Aug 30	" "	116	1162	Sept 30	" "	8044	1612	
Sept 30	" "	109	1612	Oct 31	" "	8149	1947	
Oct 31	" "	171	1947	Nov 30	" "	8271	390	
Nov 30	" "	184	390	Dec 31	" "	8377	1808	
Dec 31	" "	156	1808				7793	
			1808					

Sheet No. _____

Name
AddressLyman Photo Co
#3501

1912

Sept 30	To Luncher	109	1435	Sept 30	By L M Linn	8000	1435
Oct 31	"	112	128	Oct 31	"	8161	3415
Nov 30	"	122	3120	Nov 30	"	8276	1559
Dec 31	"	141	1504	Dec 31	"	8477	1077
Jan 31	"	156	1077	Jan 31	"	8578	05
Feb 28	"	127	00	Feb 28	"	8607	1181
Mar 31	"	134	4114	Mar 31	"	8759	1410
Apr 30	"	106	1100	Apr 30	"	8836	647
May 31	"	116	617	May 31	"	9021	593
June 30	"	106	573	June 30	78 Edwin Ap Linn	9046	2103
July 31	"	136	160	July 31	L M Linn	9125	169
Aug 30	"	90	327	Aug 30	"	9207	341
Sept 30	General Expense	210					
			11379				11379

1913

L M to Repair Staff & Supply Parts

Sept 30	To Luncher	109	6159	Sept 30	By L M Linn	8000	6159
Nov 30	"	117	113	Nov 30	"	8262	43

1913

L M to Enlarge Pattern Storage

Sept 30	To Luncher	109	360	Sept 30	To Linn Ed Linn	7999	360
Oct 31	"	122	2148	Oct 31	"	8106	2248
Nov 30	"	144	5785	Nov 30	"	8228	5785

Sheet No. _____

Name
AddressLabor 4 Material Ltd S Mayflower
#3566

1912

Sept 30	To Luncher	144	1053	Sept 30	By L M Linn	8000	1053
Jan 31	"	127	1041	Jan 31	"	8262	1041

1913

Labor 4 Material for Repairing Kinetophone

Sept 31	Luncher	10	10	Sept 31	78 Edwin Linn	8389	10
Oct 31	"	124	1060	Oct 31	"	8521	1060
Nov 31	"	119	1114	Nov 31	"	8771	1114
Dec 31	"	136	1879	Dec 31	"	8906	1879
Jan 31	"	156	2392	Jan 31	"	9106	2392

1913

Labor 4 Material (F. H. Lovell) Parts

Sept 31	Luncher	156	2083	Sept 31	By Linn Ed Linn	8313	2083
Oct 31	"	76	170	Oct 31	"	8521	170
Nov 31	"	89	210	Nov 31	"	9060	210
Dec 30	"	165	4494	Dec 30	"	9494	4494

Sheet No. _____

Name
AddressL & M to make Long Sawmill, Hank Shaving Machine
#5395

		1911		1912		1913	
Jan 31	Lumber	156	367	Jan 31	W.B. Saw Saw	5395	367
Jan 31	"	114	51	Jan 31	" " "	5395	553
"	"	127	52	Feb 28	" " "	5395	450
Feb 28	"	134	110	Apr 30	" " "	5395	1071
Apr 30	"	115	66	May 31	" " "	5395	3968
"	"	116	106	June 30	" " "	5395	1635
May 31	"	615	3968				1635
June 30	"	106	1435				1635

		1911		1912		1913	
Jan 31	Lumber	127	3339	Jan 31	W.B. Saw Saw	5366	3339
Feb 28	"	134	2323	Feb 28	" " "	5366	2323
Mar 31	"	106	1976	Mar 31	" " "	5366	1976
Apr 30	"	116	7267	Apr 30	" " "	5366	7267
May 31	"	103	1345	May 31	" " "	5366	1315

		1911		1912		1913	
Apr 30	Lumber	116	7714	Apr 30	W.B. Saw Saw	5396	7714

Sheet No. _____

Name
AddressL & M to make Long Sawmill, Hank Shaving Machine
#5395

		1911		1912		1913	
Jan 31	Lumber	115	3616	Jan 31	W.B. Saw Saw	5371	3616
Jan 31	"	106	22916	Jan 31	W.B. Saw Saw	5371	22916
Jan 31	"	134	17713	Jan 31	" " "	5371	3616
Feb 28	"	106	3616	Feb 28	" " "	5371	17713
Apr 30	"	106	210	Apr 30	" " "	5371	17713
"	"	106	210	Apr 30	" " "	5371	17713
May 31	"	106	210	May 31	" " "	5371	17713
June 30	"	106	210	June 30	" " "	5371	17713

		1911		1912		1913	
Jan 31	Lumber	65	1119	Jan 31	W.B. Saw Saw	5366	3339
Jan 31	"	106	2323	Jan 31	" " "	5366	2323
Feb 28	"	6	1976	Feb 28	" " "	5366	1976
Mar 31	"	88	7267	Mar 31	" " "	5366	7267
"	"	89	1345	Mar 31	" " "	5366	1315
"	"	114	155	"	"		
"	"	126	200	"	"		
"	"	136	22103	"	"		
"	"	79	6526	"	"		
"	"	80	926	"	"		
"	"	90	32475	"	"		
"	"	25	193	"	"		
"	"	44	202	"	"		

		1911		1912		1913	
Jan 31	Lumber	71	60	Jan 31	W.B. Saw Saw	5366	3339
Jan 31	"	106	7006	Jan 31	" " "	5366	2323
Feb 28	"	136	2084	Feb 28	" " "	5366	1976
Mar 31	"	90	7393	Mar 31	" " "	5366	7267

Sheet No. _____

Name
AddressL & M To. Made Pattern For Tools For Model 1914 Kinetic
#3650

1911	1911	1911	1911	1911	1911
June 31	oucher	106	11019	June 30	Edwin Thomas Wilson
July 31	"	126	5662	July 31	"
Aug 31	"	90	109	Aug 31	"
				9110	
				9156	
				1049	
				5662	
				109	

1911	1911	1911	1911	1911	1911
Aug 31	oucher	89	05	Aug 31	Edwin Thomas Wilson
	"	90	507		"
				9175	
				517	

1911	1911	1911	1911	1911	1911
Aug 31	oucher	90	12407	Aug 31	Edwin Thomas Wilson
Sept 31	"	90	11603	Sept 31	"
Oct 31	"	115	1050	Oct 31	"
Dec 31	"	152	735	Dec 31	"
				9207	
				9207	
				9423	
				9609	
				735	

Sheet No. _____

Name
AddressL & M in the Manufacture of Carophenylamine
#3779

1911	1911	1911	1911	1911	1911
Dec 31	oucher	53	16410	Dec 31	Edwin Thomas Wilson
	"	111	78		"
	"	126	288		"
	"	137	2311		"
	"	139	356		"
	"	150	205		"
	"	152	21131		"
	"	15	9122		"
	"	29	4135		"
	"	40	3220		"
	"	46	9960		"
	"	47	1274		"
	"	48	636		"
	"	90	79		"
	"	91	24299		"

1911	1911	1911	1911	1911	1911
Dec 31	oucher	152	1795	Dec 31	Edwin Thomas Wilson
Jan 31	"	138	5607	Jan 31	"
				9611	
				9660	
				19700	
				5607	

1911	1911	1911	1911	1911	1911
Jan 31	oucher	138	5205	Jan 31	Edwin Thomas Wilson
Feb 28	"	147	28702	Feb 28	"
Mar 31	"	171	37459	Mar 31	"
Apr 30	"	352	26600	Apr 30	"
May 31	"	393	30793	May 31	"
June 30	"	251	29370	June 30	"
July 31	"	256	33500	July 31	"
Aug 31	"	221	29370	Aug 31	"
Sept 30	"	200	29370	Sept 30	"
Oct 31	"	177	29370	Oct 31	"
Nov 30	"	212	26125	Nov 30	"
Dec 31	"	222	23500	Dec 31	"
Jan 31	"	148	26250	Jan 31	"
Feb 29	"	176	30625	Feb 29	"
Mar 31	"	119	26250	Mar 31	"
				1113	
				26250	

Sheet No. _____

Name _____
Address _____Loading Hing Ho Tule & Stand
Hing Ho

1911		1912		1913		1914	
July 31	Voucher	120	-	July 29	Edwards & Smith	11943	3736
July 29	"	67	145	July 30	"	11174	15
		71	75				
		176	2628				
Apr 30		57	75				

1911		1912		1913		1914	
July 31	Voucher	29	140	July 29	Edwards & Smith	11943	10019
	"	110	116	July 31	"	11174	15
	"	126	10060	Apr 30	"	11174	15
Mar 31		119	1429				
Apr 30		57	15				

1911		1912		1913		1914	
July 29	Voucher	126	718	July 29	Edwards & Smith	11943	758
Mar 31	"	30	150	Mar 31	"	11174	710
	"	86	30				

Sheet No. _____

Name _____
Address _____Backs of Dining Cabinets in Dining Room Sept
H.M.P.

1911		1912		1913		1914	
July 31	Voucher	121	413	July 31	P.H. & Son	11217	473
June 30	"	108	202	June 30	"	11174	302

1911		1912		1913		1914	
July 31	Voucher	108	194	July 30	P.H. & Son	11217	194
July 31	"	122	111	July 31	"	11174	111

1911		1912		1913		1914	
July 30	Voucher	108	1245	July 30	P.H. & Son	11217	525
July 31	"	132	676	July 31	"	11174	675

Sheet No. _____

Name

L.M. Pattern for Jack for Plate

Address

4x20

June 30	Voucher	105	177	June 30	E. Chas. Wm.	1157	1071
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June 30	Voucher	105	105	June 30	E. Chas. Wm.	1157	105
---------	---------	-----	-----	---------	--------------	------	-----

June 30	Voucher	105	121	June 30	E. Chas. Wm.	1157	121
---------	---------	-----	-----	---------	--------------	------	-----

Sheet No. _____

Name

L.M. to Cover Engineering Work at Laboratory

Address

R-11526

June 30	Voucher	105	6570	June 30	E. Chas. Wm.	1157	6570
July 31	"	122	10010	July 31	"	1170	10016

L.M. to Make Milling Base for Barrel Supports

July 31	Voucher	56	1165	July 31	E. Chas. Wm.	1170	3313
		80	1670				
		122	1579				

L.M. to Make Gun Milling Station

July 31	Voucher	56	826	July 31	E. Chas. Wm.	1170	1358
		80	1310				
		122	1579				

Sheet No.

Name

Address

1 Large Picture Frame for Maps
18 x 27

July 31 Voucher 60 122 22.5 July 31 1899 11745 705

Ladon Co. Maps 60 122 11745 July 31 1899 11745 705

July 31 Voucher 122 11745 July 31 1899 11745 705

Making Commutator 1 Model for 24 Machine Work on 12 Amending 101
 Dynamo #1934 Machine House #216 24 Machine Work on 101
 Making Model 2 Meisler S. R. 24 Machine Work on 101
 House #1934 L. T. M. 24 Machine Work on 101
 Making 3 Microscope 15 24 Machine Work on 101
 1000 Seal Cells #1922 24 Machine Work on 101
 Making 4 Model House for 26 Machine 4-Good Supply #2263
 Fine Extinguishing Gun #1931 Exhibition at N. Y. #2157 Machine 4-Pattern #2263
 Making 5 Make 17 Plate Cell 27 Machine Work on Castings #2263
 Polish Leading Mach. #2186 out of A4 Cell #2186 Machine 3-Forgings #2263
 Machining 4-36 6 Model of 1911 28 Make 2 Blue Paint #2263
 Bell Mandrels #1984 28 Make 2 Blue Paint #2263
 Martin H. 7 Model of Hand Power 29 Make Pattern #1857-
 Labor & Material for Shaving Machine #2187 Make Spokelets #2263
 Making 8 Make 1-2-13 2-30 Make 1-Pattern #2263
 Lithium Patch #2017 assembling Jigs #2190 Mach. to Cut Plate #2263
 Models for 9 Machine to Recover 31 Make 12-Cell #2263
 Plate Pocket Mach. #1936 31 Make 12-Cell #2263
 Miller W. H. 10 Make 1-Piece for Sketch #2263
 Labor & Material for 11 Machine forging per 1 24 Machine forging per 1 24
 Machine Work on Gun #1936 11 Machine forging per 1 24
 Table for Storage in Rack #1936 11 Machine forging per 1 24
 Making 6-Record 12 Mould Housing #2263 12 Mould Housing #2263
 Moulding Machines 13 Machine for Building 33 Make 4-Record #2263
 Making 5-Special 13 Draw Machine #2263 13 Draw Machine #2263
 Photographs 200 third #2007 13 Draw Machine #2263
 Moving Picture Camera #2012-14 13 Draw Machine #2263
 Making 25-Juliet 15 Blank Moulding 207 Make side strips #2263
 Loading Machine #2021 15 Blank Moulding 207 Make side strips #2263
 Musical Experiments 16 L. T. M. 53 Machine to Remove 107
 By the Cannon #2021 16 L. T. M. 53 Machine to Remove 107
 Making Photograph Mach. 2036 16 L. T. M. 53 Machine to Remove 107
 Making Hand Magnets #18 Make Maps of N. Y. 54 Make strips #2263
 and Key for 2037 P. C. Works #2036 54 Make strips #2263
 Moving Concrete #2036 2036 54 Make strips #2263
 Building Steel 2036 2036 54 Make strips #2263
 Miller S. J. 19 Make 1000 Candles 37 Make steel Part #2263
 Labor & Material for 19 to Redwood Swamp #2263 37 Make steel Part #2263
 Miller J. V. 20 Make 100 Glass Rods #2263 37 Make steel Part #2263
 Labor & Material for 20 Make 100 Glass Rods #2263 37 Make steel Part #2263
 Making 2037 Machine to bore hole 38 Make 4 Bars #2263
 Making 2037 Machine to bore hole 38 Make 4 Bars #2263
 Making 2037 Machine to bore hole 38 Make 4 Bars #2263
 Concrete Road #2110 Make Cell 39 Make 61 Pieces #2263
 Microscopic Tube 22 Machine to bore hole 39 Make 61 Pieces #2263
 Shaving Machine #2113 Machine to bore hole 39 Make 61 Pieces #2263
 Mining & Exploration 40 Machine to bore hole 39 Make 61 Pieces #2263
 Co. of N. Y. L. T. M. 40 Machine to bore hole 39 Make 61 Pieces #2263
 Making assembling 23 40 Machine to bore hole 39 Make 61 Pieces #2263
 Jigs #2114 Make 4 Valves #2263 40 Machine to bore hole 39 Make 61 Pieces #2263
 Make Jigs 41 Make 4 Valves #2263 40 Machine to bore hole 39 Make 61 Pieces #2263
 L. T. M. for 41 Make 4 Valves #2263 40 Machine to bore hole 39 Make 61 Pieces #2263

Sheet No. 2

Name

Address

Making Model House #1934

THE RECORD OF BUILDING ACTIVITIES

1934

Arch. Bureau	68.54.81
Nov 30 To Venches	41. 116.27
" " " "	47. 12.01
" " " "	48. 32
" " " "	52. 26.0
" " " "	53. 11
" " " "	69. 26.4
" " " "	70. 27.7
" " " "	76. 46.5
" " " "	78. 29.84
" " " "	82. 41
" " " "	84. 26.0
" " " "	88. 85.544
" " " "	89. 42.772
" " " "	90. 57.948
Dec 31	4. 26.0
" " " "	13. 35.0
" " " "	28. 45
" " " "	31. 34.51
" " " "	42. 33.3
" " " "	43. 23.95
" " " "	47. 21.070
" " " "	52. 53.0
" " " "	58. 76.1
" " " "	60. 77.533
" " " "	70. 2.80
" " " "	72. 10.98
" " " "	74. 9.75
" " " "	82. 30.0
" " " "	86. 52.9
" " " "	87. 12.06
" " " "	92. 24.0
" " " "	99. 35.71
" " " "	100. 127.257
" " " "	104. 35
Jan 30	105. 63.630
" " " "	106. 59.115
" " " "	12. 55.0
" " " "	21. 10.00
" " " "	25. 1.44
" " " "	35. 17.10
" " " "	38. 24.98
" " " "	42. 38.0
" " " "	47. 57.67
" " " "	61. 27.627
" " " "	71. 28.85
" " " "	72. 22.2
" " " "	72. 12.0
" " " "	77. 7.92
" " " "	102. 11.2
" " " "	106. 58.62
" " " "	109. 52.26
" " " "	110. 70.130
" " " "	111. 45.065
	135. 77.05

Sheet No. 8

Name
AddressMating Lithium Petals #3019
#1442

1911			1911			1912		
Nov 30	Forward	117	2709	Nov 30	Forward	409022	12443	
"	"	118	1357	Dec 30	Forward	7250	122173	
"	"	119	1174	"	"	7324	122177	
Dec 30	"	120	1211	Rich 29	"	7463	122181	
"	"	121	1213	Mar 30	"	7498	122186	
1912	"	43	1213	Apr 30	"	7574	122194	
Feb 19	"	138	6166	May 31	"	7580	122197	
"	"	141	10500	June 29	"	6623	122201	
"	"	144	3609	July 31	"	6175	122203	
Mar 30	"	146	18173	Aug 31	"	6317	122205	
"	"	82	9276	Sept 30	"	6461	122206	
"	"	157	12207	Oct 31	"	6603	122208	
Apr 30	"	143	2500	Nov 30	"	6790	122210	
"	"	144	1584	Dec 31	"	6826	122213	
"	"	148	2391	Baby 28	"	6927	122215	
June 29	"	148	12112	"	"	7007	122217	
July 31	"	142	12172	"	"			
Aug 31	"	129	12172	"	"			
Sept 30	"	126	12172	"	"			
"	"	121	12172	"	"			
Oct 31	"	149	12172	"	"			
Nov 30	"	121	12172	"	"			
Dec 31	"	121	12172	"	"			
1913	"	125	220504	"	"			
Jan 31	"	123	3123	"	"			
"	"	96	32160	"	"			
"	"	155	15945	"	"			
Baby 28	"	121	32373	"	"			
"	"	91	4000	"	"			
"	"	121	11450	"	"			
"	"	121	11450	"	"			
1913				1913				
Mar 31	Forward	120	12634	Mar 31	By E.S. B. Band	7723	12634	
Apr 30	"	116	15211	Apr 30	"	7335	122178	
May 31	"	111	15001	May 31	"	7460	122181	
June 30	"	123	21401	June 30	"	7573	122186	
July 31	"	41	3000	July 31	"	7719	122194	
"	"	127	139	Aug 31	"	7552	122197	
"	"	129	15726	Sept 30	"	7773	122201	
Aug 30	"	116	15726	Oct 31	"	7891	122203	
"	"	113	8000	Nov 30	"	8706	122205	
Sept 30	"	131	3000	Dec 31	"	1373	122206	
Oct 31	"	159	7740	Jan 31	"	1457	122208	
"	"	155	12172	"	"	1457	122210	
Nov 30	"	116	12172	"	"			
"	"	114	5038	"	"			
Dec 31	"	116	2000	"	"			
1914	"	156	11131	"	"			
Jan 31	"	45	3000	"	"			
"	"	127	122172	"	"			
Forwarded			122172					

Sheet No. 8

Name
AddressMating Lithium Petals #3019
#1442

1911			1911			1912		
Jan 31	Forward	30	12570	Jan 31	Forward	12570	12570	
Feb 28	Forward	119	3000	Feb 28	Forward	3000	12570	
"	"	134	1793	Mar 31	"	1793	12570	
Mar 31	"	156	203	Apr 30	"	203	12570	
Apr 30	"	39	3000	May 31	"	3000	12570	
"	"	116	714	Jun 30	"	714	12570	
May 31	"	101	245	Jul 31	"	245	12570	
"	"	105	3000	Aug 30	"	3000	12570	
"	"	110	3000	Sept 30	"	3000	12570	
June 30	"	29	3000	Oct 31	"	3000	12570	
"	"	106	1173	Nov 30	"	1173	12570	
July 31	"	38	7050	Dec 31	"	7050	12570	
"	"	136	12373	Jan 31	"	12373	12570	
Aug 30	"	81	7050	Feb 28	"	7050	12570	
"	"	89	100	Mar 31	"	100	12570	
"	"	90	1125	Apr 30	"	1125	12570	
Sept 30	"	28	125	May 31	"	125	12570	
"	"	95	125	Jun 30	"	125	12570	
Oct 31	"	110	125	Jul 31	"	125	12570	
"	"	109	125	Aug 31	"	125	12570	
Nov 30	"	157	125	Sept 30	"	125	12570	
Dec 31	"	138	125	Oct 31	"	125	12570	
1913	"	147	125	Nov 30	"	125	12570	
1914	"	116	125	Dec 31	"	125	12570	
1915	"	171	125	Jan 31	"	125	12570	
1916	"	27	125	Feb 28	"	125	12570	
1917	"	293	125	Mar 31	"	125	12570	
1918	"	251	125	Apr 30	"	125	12570	

Sheet No. _____

No. 108C

Name
AddressName
Address

Sheet No. 10

Name
Address

W. H. Miller Labor & Material for

1908

Mar 31 To Voucher

69	1.83
71	1.63
86	3.26
80	2.51
79	1.20
80	1.40
56	1.10
96	1.20
104	1.30
90	1.64
99	1.73
97	1.10
104	1.43
111	1.30
84	3.20
108	3.51
108	3.65
113	4.32
104	4.27
102	4.32
133	1.20
115	1.80
90	2.80
103	3.40
118	1.40
119	6.26
90	6.20
88	4.16
100	5.74
96	5.58
96	4.44
120	4.44
116	1.16
114	1.10
115	36
117	103.20
115	20.22

1913

Sept 30 To Voucher

200	200
96	96

1908

Mar 31 By L & M Invoice

64	1.20
179	2.44
264	3.33
376	4.79
538	5.77
670	8.62
1080	10.80
1080	11.63
1257	13.01
1413	14.59
1550	16.76
1763	18.41
1940	19.86
2162	22.21
2366	25.21
2624	26.81
2978	28.17
3137	31.37
3493	41.53

1913

Sept 30 By L & M Invoice

806	806
07	07
255	255

3.46

3.85

2.09

2.40

1.80

1.20

1.20

1.20

3.30

2.64

1.73

1.10

1.43

1.30

3.20

3.51

3.65

4.32

4.27

4.32

1.20

1.80

2.80

3.40

1.40

6.26

6.20

4.16

5.74

5.58

4.44

4.44

1.16

1.10

36

103.20

20.22

123.86

Address

Address

Musical Experiments by Mr. Quimant.

14

1913		1913		1913		1913		1913	
Mar/31	J. L. L. L. L.	12.0	213.11	Mar/31	By H. H. H. H.	7238	213.11	11	11
Apr/30	"	20	20	Apr/30	"	7245	213.11	11	11
	"	41	33	May/31	"	7251	213.11	11	11
	"	140	213.11	May/31	"	7261	213.11	11	11
May/31	"	52	213.11	May/31	"	7274	213.11	11	11
	"	114	213.11	May/31	"	7282	213.11	11	11
June/30	"	41	213.11	June/30	"	7291	213.11	11	11
	"	195	213.11	June/30	"	7309	213.11	11	11
July/31	"	43	213.11	July/31	"	7321	213.11	11	11
	"	103	213.11	July/31	"	7335	213.11	11	11
	"	129	213.11	July/31	"	7347	213.11	11	11
Aug/30	"	16	213.11	Aug/30	"	7356	213.11	11	11
Sept/30	"	30	213.11	Sept/30	"	7365	213.11	11	11
	"	109	213.11	Sept/30	"	7377	213.11	11	11
Oct/31	"	12	213.11	Oct/31	"	7383	213.11	11	11
Nov/30	"	14	213.11	Nov/30	"	7390	213.11	11	11
	"	111	213.11	Nov/30	"	7393	213.11	11	11
Dec/31	"	46	213.11	Dec/31	"	7400	213.11	11	11
1914	"	156	213.11	1914	"	7407	213.11	11	11
Jan/31	"	26	213.11	Jan/31	"	7410	213.11	11	11
	"	196	213.11	Jan/31	"	7417	213.11	11	11
Feb/31	"	12	213.11	Feb/31	"	7424	213.11	11	11
	"	24	213.11	Feb/31	"	7431	213.11	11	11
	"	28	213.11	Feb/31	"	7434	213.11	11	11
	"	76	213.11	Feb/31	"	7440	213.11	11	11
	"	112	213.11	Feb/31	"	7445	213.11	11	11
Mar/31	"	134	213.11	Mar/31	"	7450	213.11	11	11
Apr/30	"	106	213.11	Apr/30	"	7453	213.11	11	11
May/31	"	116	213.11	May/31	"	7456	213.11	11	11
June/30	"	115	213.11	June/30	"	7459	213.11	11	11
	"	106	213.11	June/30	"	7462	213.11	11	11
			213.11				213.11		

Sheet No. _____

Name
Address

Sheet No. 19

Name
Address

H. J. Miller Labor & Mat/for

1907

Feb 27 To Voucher

Mar 31 " " "

Apr 30 " " "

May 31 " " "

Jun 30 " " "

Jul 31 " " "

Aug 31 " " "

Sep 30 " " "

Oct 31 " " "

Nov 30 " " "

Dec 31 " " "

Jan 31 " " "

Feb 28 " " "

Mar 31 " " "

Apr 30 " " "

May 31 " " "

Jun 30 " " "

Jul 31 " " "

Aug 31 " " "

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Jul 31 " " "

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1909

Feb 27 By L & M Invered

Mar 31 " " "

Apr 30 " " "

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Jan 31 " " "

Feb 28 " " "

Mar 31 " " "

Apr 30 " " "

May 31 " " "

Jun 30 " " "

Jul 31 " " "

Aug 31 " " "

Sep 30 " " "

Oct 31 " " "

Nov 30 " " "

Dec 31 " " "

LEAVE

1910

Mar 31 To Lumber

Apr 30 " " "

May 31 " " "

Jun 30 " " "

Jul 31 " " "

Aug 31 " " "

Sep 30 " " "

Oct 31 " " "

Nov 30 " " "

Dec 31 " " "

Jan 31 " " "

Feb 28 " " "

Mar 31 " " "

Apr 30 " " "

May 31 " " "

Jun 30 " " "

Jul 31 " " "

Aug 31 " " "

Sep 30 " " "

Oct 31 " " "

Nov 30 " " "

Dec 31 " " "

Sheet No. _____

Name
Address

Sheet No. _____

Name
Address

Music & Musical Sales

City, State

Date
Volume

41

1912		1913		1914		1915	
June 30	To Cash	91	900	June 30	By M. B. Barber	7634	47767
" "	" "	107	200	July 31	" "	7770	157763
" "	" "	115	300	" "	" "	7770	157763
" "	" "	120	434	Oct 31	" "	7770	157763
" "	" "	121	320	" "	" "	7770	157763
" "	" "	88	140	Nov 30	" "	7770	157763
" "	" "	112	120	Dec 31	" "	7770	157763
" "	" "	120	25	Jan 31	" "	7770	157763
" "	" "	127	30	Feb 28	" "	7770	157763
" "	" "	129	64	Mar 31	" "	7770	157763
" "	" "	113	171	Apr 30	" "	7770	157763
" "	" "	44	108	May 31	" "	7770	157763
" "	" "	79	10	June 30	" "	7770	157763
" "	" "	99	30	July 31	" "	7770	157763
" "	" "	110	470	Aug 31	" "	7770	157763
" "	" "	116	116	Sept 30	" "	7770	157763
" "	" "	30	50	Oct 31	" "	7770	157763
" "	" "	32	32	Nov 30	" "	7770	157763
" "	" "	74	50	Dec 31	" "	7770	157763
" "	" "	91	60	Jan 31	" "	7770	157763
" "	" "	96	29	Feb 28	" "	7770	157763
" "	" "	109	385	Mar 31	" "	7770	157763
" "	" "	66	150	Apr 30	" "	7770	157763
" "	" "	65	1800	May 31	" "	7770	157763
" "	" "	103	210	June 30	" "	7770	157763
" "	" "	111	30	July 31	" "	7770	157763
" "	" "	122	346	Aug 31	" "	7770	157763
" "	" "	46	1760	Sept 30	" "	7770	157763
" "	" "	100	170	Oct 31	" "	7770	157763
" "	" "	109	180	Nov 30	" "	7770	157763
" "	" "	121	310	Dec 31	" "	7770	157763
" "	" "	5	400	Jan 31	" "	7770	157763
" "	" "	110	200	Feb 28	" "	7770	157763
" "	" "	137	170	Mar 31	" "	7770	157763
" "	" "	143	1428	Apr 30	" "	7770	157763
" "	" "	154	1500	May 31	" "	7770	157763
" "	" "	156	4322	June 30	" "	7770	157763
" "	" "	72	200	July 31	" "	7770	157763
" "	" "	113	760	Aug 31	" "	7770	157763
" "	" "	120	30	Sept 30	" "	7770	157763
" "	" "	126	77	Oct 31	" "	7770	157763
" "	" "	127	457	Nov 30	" "	7770	157763
" "	" "	55	300	Dec 31	" "	7770	157763
" "	" "	76	28	Jan 31	" "	7770	157763
" "	" "	93	241	Feb 28	" "	7770	157763
" "	" "	101	600	Mar 31	" "	7770	157763
" "	" "	102	200	Apr 30	" "	7770	157763
" "	" "	119	388	May 31	" "	7770	157763
" "	" "	124	147	June 30	" "	7770	157763
" "	" "	32	45	July 31	" "	7770	157763
" "	" "	45	140	Aug 31	" "	7770	157763
" "	" "	50	150	Sept 30	" "	7770	157763
" "	" "	66	900	Oct 31	" "	7770	157763
" "	" "		457513	Nov 30	" "	7770	157763
" "	" "			Dec 31	" "	7770	157763

Sheet No.

Name
AddressMunicipal Salary
#2262

1914	1915	1916	1917		
Mar 31	Long & Boyd Cumber	1555.13	Mar 31	Long & Boyd Cumber	1555.13
	"	89	Apr 30	"	89
	"	97	"	"	97
	"	106	"	"	106
	"	98	"	"	98
	"	101	"	"	101
	"	116	"	"	116
	"	86	"	"	86
	"	88	"	"	88
	"	99	"	"	99
	"	101	"	"	101
	"	105	"	"	105
	"	107	"	"	107
	"	115	"	"	115
	"	71	"	"	71
	"	81	"	"	81
	"	93	"	"	93
	"	106	"	"	106
	"	38	"	"	38
	"	122	"	"	122
	"	136	"	"	136
	"	71	"	"	71
	"	81	"	"	81
	"	90	"	"	90
	"	66	"	"	66
	"	91	"	"	91
	"	95	"	"	95
	"	11	"	"	11
	"	110	"	"	110
	"	113	"	"	113
	"	115	"	"	115
	"	67	"	"	67
	"	101	"	"	101
	"	109	"	"	109
	"	8	"	"	8
	"	12	"	"	12
	"	33	"	"	33
	"	81	"	"	81
	"	126	"	"	126
	"	130	"	"	130
	"	138	"	"	138
	"	149	"	"	149
	"	150	"	"	150
	"	152	"	"	152
	"	26	"	"	26
	"	84	"	"	84
	"	100	"	"	100
	"	111	"	"	111
	"	106	"	"	106
	"	138	"	"	138
	"	30	"	"	30
	"	71	"	"	71
	"	104	"	"	104

Sheet No.

Name
AddressMunicipal Salary
#2262

1914	1915	1916	1917
July 28	June 30	July 28	July 28
147	147	147	147
157	157	157	157
17	17	17	17
97	97	97	97
103	103	103	103
171	171	171	171
11	11	11	11
31	31	31	31
73	73	73	73
102	102	102	102
110	110	110	110
135	135	135	135
154	154	154	154
187	187	187	187
193	193	193	193
167	167	167	167
168	168	168	168
251	251	251	251
46	46	46	46
47	47	47	47
83	83	83	83
118	118	118	118
119	119	119	119
173	173	173	173
200	200	200	200
1	1	1	1
1	1	1	1
17	17	17	17
29	29	29	29
31	31	31	31
36	36	36	36
44	44	44	44
50	50	50	50
103	103	103	103
117	117	117	117
221	221	221	221
19	19	19	19
93	93	93	93
105	105	105	105
150	150	150	150
164	164	164	164
199	199	199	199
200	200	200	200
22	22	22	22
24	24	24	24
37	37	37	37
46	46	46	46
82	82	82	82
95	95	95	95
121	121	121	121

Sheet No.

Name

Address

Music & Mineral Sales

1262

Oct 31	Number	176	08 Nov 30	106.7	106.7
"	"	177	106.8	106.8	106.8
Nov 30	"	1	106.9	106.9	106.9
"	"	12	107.0	107.0	107.0
"	"	33	107.1	107.1	107.1
"	"	36	107.2	107.2	107.2
"	"	45	107.3	107.3	107.3
"	"	106	107.4	107.4	107.4
"	"	117	107.5	107.5	107.5
"	"	120	107.6	107.6	107.6
"	"	138	107.7	107.7	107.7
"	"	157	107.8	107.8	107.8
Dec 31	"	177	107.9	107.9	107.9
"	"	13	108.0	108.0	108.0
"	"	100	108.1	108.1	108.1
"	"	18	108.2	108.2	108.2
"	"	20	108.3	108.3	108.3
"	"	26	108.4	108.4	108.4
"	"	27	108.5	108.5	108.5
"	"	29	108.6	108.6	108.6
"	"	38	108.7	108.7	108.7
"	"	47	108.8	108.8	108.8
"	"	51	108.9	108.9	108.9
"	"	96	109.0	109.0	109.0
"	"	98	109.1	109.1	109.1
"	"	107	109.2	109.2	109.2
"	"	110	109.3	109.3	109.3
"	"	132	109.4	109.4	109.4
"	"	136	109.5	109.5	109.5
"	"	138	109.6	109.6	109.6
"	"	148	109.7	109.7	109.7
"	"	159	109.8	109.8	109.8
"	"	160	109.9	109.9	109.9
"	"	154	110.0	110.0	110.0
"	"	160	110.1	110.1	110.1
"	"	220	110.2	110.2	110.2
"	"	226	110.3	110.3	110.3
Jan 31	"	1	110.4	110.4	110.4
"	"	8	110.5	110.5	110.5
"	"	19	110.6	110.6	110.6
"	"	21	110.7	110.7	110.7
"	"	27	110.8	110.8	110.8
"	"	37	110.9	110.9	110.9
"	"	39	111.0	111.0	111.0
"	"	43	111.1	111.1	111.1
"	"	62	111.2	111.2	111.2
"	"	81	111.3	111.3	111.3
"	"	91	111.4	111.4	111.4
"	"	99	111.5	111.5	111.5
"	"	130	111.6	111.6	111.6
"	"	133	111.7	111.7	111.7
"	"	148	111.8	111.8	111.8
"	"	169	111.9	111.9	111.9

Sheet No.

Name

Address

Music & Mineral Sales

1262

Jan 31	Number	33	Feb 29	1107.6	1107.6
Feb 29	"	30	1107.7	1107.7	1107.7
"	"	31	1107.8	1107.8	1107.8
"	"	32	1107.9	1107.9	1107.9
"	"	33	1108.0	1108.0	1108.0
"	"	34	1108.1	1108.1	1108.1
"	"	63	1108.2	1108.2	1108.2
"	"	70	1108.3	1108.3	1108.3
"	"	74	1108.4	1108.4	1108.4
"	"	87	1108.5	1108.5	1108.5
"	"	120	1108.6	1108.6	1108.6
"	"	121	1108.7	1108.7	1108.7
"	"	126	1108.8	1108.8	1108.8
Mar 31	Number	126	1108.9	1108.9	1108.9
"	"	35	1109.0	1109.0	1109.0
"	"	37	1109.1	1109.1	1109.1
"	"	38	1109.2	1109.2	1109.2
"	"	60	1109.3	1109.3	1109.3
"	"	70	1109.4	1109.4	1109.4
"	"	76	1109.5	1109.5	1109.5
"	"	86	1109.6	1109.6	1109.6
"	"	113	1109.7	1109.7	1109.7
"	"	118	1109.8	1109.8	1109.8
Apr 30	Number	118	1109.9	1109.9	1109.9
"	"	86	1110.0	1110.0	1110.0
"	"	87	1110.1	1110.1	1110.1
"	"	88	1110.2	1110.2	1110.2
"	"	91	1110.3	1110.3	1110.3
May 31	"	10	1110.4	1110.4	1110.4
"	"	46	1110.5	1110.5	1110.5
"	"	93	1110.6	1110.6	1110.6
"	"	112	1110.7	1110.7	1110.7
"	"	128	1110.8	1110.8	1110.8
"	"	138	1110.9	1110.9	1110.9
June 30	"	36	1111.0	1111.0	1111.0
"	"	71	1111.1	1111.1	1111.1
"	"	103	1111.2	1111.2	1111.2
"	"	108	1111.3	1111.3	1111.3
"	"	112	1111.4	1111.4	1111.4
"	"	34	1111.5	1111.5	1111.5
July 31	"	86	1111.6	1111.6	1111.6
"	"	122	1111.7	1111.7	1111.7

Sheet No. _____

Name _____

Address _____

Sheet No. 44Name _____
Address _____

Miniature Bell for Police & Miners

2360

1911	Mar 31	To Voucher	117	1000	Mar 31	By Balance Due	3662	15800
"	"	"	118	500	Apr 30	"	3836	2969
"	"	"	113	500	May 31	"	4019	3306
"	"	"	114	1951	July 30	"	4212	3283
"	"	"	115	400	July 31	"	4451	2916
"	"	"	67	400	"	"	4507	10106
"	"	"	114	3208	Aug 31	"	4608	4936
"	"	"	115	24285	Sept 30	"	4745	4482
"	"	"	116	5747	Oct 31	"	4895	4228
"	"	"	117	3757	Nov 30	"	5043	3927
"	"	"	71	60	Dec 31	"	5190	3678
"	"	"	85	100	Jan 31	"	5334	3426
"	"	"	117	24935	Feb 29	"	5472	3172
"	"	"	118	122	Mar 30	"	5605	2919
"	"	"	119	6469	Apr 30	"	5764	2669
"	"	"	120	2099	May 31	"	5925	2428
"	"	"	34	700	June 30	"	6086	2186
"	"	"	74	45	July 31	"	6158	1945
"	"	"	109	3000	"	"		1705
"	"	"	110	4679	"	"		1464
"	"	"	111	21358	"	"		1223
"	"	"	112	111	"	"		982
"	"	"	70	04	"	"		741
"	"	"	83	1110	"	"		500
"	"	"	117	234	"	"		259
"	"	"	120	34486	"	"		13
"	"	"	121	9360	"	"		
"	"	"	122	1000	"	"		
"	"	"	73	1000	"	"		
"	"	"	108	32419	"	"		
"	"	"	109	1225	"	"		
"	"	"	110	319	"	"		
"	"	"	111	1922	"	"		
"	"	"	112	36511	"	"		
"	"	"	113	22839	"	"		
"	"	"	114	2705	"	"		
"	"	"	115	201	"	"		
"	"	"	71	2144	"	"		
"	"	"	117	38971	"	"		
"	"	"	118	1557	"	"		
"	"	"	119	726	"	"		
"	"	"	120	35377	"	"		
"	"	"	69	50	"	"		
"	"	"	122	67858	"	"		
"	"	"	123	1000	"	"		
"	"	"	82	1000	"	"		
"	"	"	144	5791	"	"		
"	"	"	127	52720	"	"		
"	"	"	108	19276	"	"		
"	"	"	144	99609	"	"		
"	"	"	73	1000	"	"		
"	"	"	140	83145	"	"		
"	"	"	84	79272	"	"		
"	"	"	145	89439	"	"		
"	"	"	83	1000	"	"		
"	"	"	126	1000	"	"		

Name
Address

miniature Cells for Police & Miners #236

1912				1912			
aug 31	To forward	69	974455	aug 31	To forward	6302	974455
"	"	129	1149177	sept 30	"	6449	1149203
sept 30	"	73	114	oct 31	"	6592	1149203
"	"	121	116888	nov 30	"	6710	116888
Oct 31	"	82	116	dec 31	"	6810	116888
"	"	149	200875	Jan 31	"	6930	116888
Nov 30	"	30	117	Feb 28	"	7055	116888
"	"	123	116				
Dec 31	"	124	116888				
"	"	46	116				
"	"	47	116				
"	"	109	671				
"	"	106	116				
"	"	158	200875				
1913							
Jan 31	"	45	116888				
"	"	18	61				
"	"	53	800				
"	"	124	73				
"	"	151	11				
Feb 28	"	155	29887				
"	"	39	116				
"	"	121	116888				
			174792				174792
Mar 31	To forward	39	6449	Mar 31	To forward	1196	116888
June 30	"	120	974455	June 30	"	7587	116888
"	"	118	116888	July 31	"	7762	116888
"	"	170	2530	Aug 31	"	7877	116888
July 31	"	129	10053	Sept 30	"	7971	200
Aug 30	"	116	6188	Oct 31	"	8020	116888
Sept 30	"	30	200				
Dec 31	"	186	25837				

Name
AddressMotion Picture Experiment & Educational Surveys
124788

1913				1913			
July 28	To forward	47	200875	July 28	To forward	2492600	
"	"	66	2196				
"	"	72	1730				
"	"	91	1431				
"	"	93	650				
"	"	111	25				
"	"	117	350				
"	"	116	117				
"	"	124	1731				
Oct 28	"	122	2492600	Mar 31	To forward	7246	112163
Mar 31	To forward	38	3241	Apr 30	"	7346	112163
"	"	39	3241	May 31	"	7446	112163
"	"	40	700	June 30	"	7546	112163
"	"	62	700	July 31	"	7646	112163
"	"	81	15924	Aug 31	"	7746	112163
"	"	85	2530	Sept 30	"	7846	112163
"	"	94	6500	Oct 31	"	7946	112163
"	"	117	6000	Nov 30	"	8046	112163
"	"	118	300				
"	"	119	00				
"	"	120	10000				
Apr 30	"	40	300				
"	"	44	300				
"	"	51	300				
"	"	104	14830				
"	"	136	3100				
"	"	137	300				
"	"	140	7000				
May 31	"	19	1471				
"	"	33	50				
"	"	53	1454				
"	"	67	140				
"	"	76	1466				
"	"	137	60				
"	"	138	1100				
"	"	147	77202				
June 30	"	111	13900				
"	"	12	727				
"	"	44	1004				
"	"	44	26				
"	"	90	125				
"	"	125	71038				
July 31	"	40	142				
"	"	41	9008				
"	"	42	30				
"	"	88	1484				
"	"	129	7736				
Aug 30	"	42	13750				
"	"	46	11058				

Sheet No. _____

Name _____
Address _____Motion Picture Experiment, to Educational Purposes
#3788

1912

Aug	30	Bought 2500 ft	77	1100.13	Aug 30	Bought 2500 ft	80.00	5180.53
"	"	"	116	217	Sept 30	to F&E and Son	81.12	332.39
"	"	"	31	116	Oct 31	"	"	122.74
"	"	"	116	277.43	Nov 30	"	"	153.9
Sept 30	"	"	31	10.50	Dec 31	"	"	835.7
"	"	"	32	13.11				161.885
"	"	"	109	777.78				
Oct 31	"	"	67	10.50				
"	"	"	11	10.0				
"	"	"	122	12.1				
Nov 30	"	"	116	153.9				
Dec 31	"	"	116	150				
			116	1103.50				

Sheet No. 52

Name _____
Address _____Motion Picture Machine (High speed)
#3043

June 29	to vendor	39	82.4	June 29	to O. H. & W. N.	61.05	268.85
"	"	86	121.07	July 31	"	62.47	149.94
"	"	145	139.61	Aug 31	"	63.93	417.76
July 31	"	40	85.25	Sept 30	"	64.46	163.75
"	"	99	65	"	"	65.33	179.80
"	"	142	69.29	Oct 31	"	66.69	77
Aug 31	"	33	48.03	Nov 30	"	69.3	578.6
Sept 30	"	88	77	Dec 31	"	71.51	1350
Oct 31	"	83	129.07				318
Nov 30	"	1350	1350				
Dec 31	"	124	611.96				411.96

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Misc Book-ends for Mrs. Hutchinson
1934

NAME

ADDRESS

53

1913

Oct 1 Bond Salin
21 To Blumher

127

35

36

57

63

65

80

91

127

127

127

127

127

127

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127

127

Nov 30

13

34

47

48

49

70

100

106

121

121

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Dec 31

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Jan 31

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Feb 28

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Mar 31

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Apr 30

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May 31

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June 30

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July 31

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Aug 30

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Sept 30

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Oct 31

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88

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Maintenance of Equipment of Steel Road Motor
4411561

1916		1917		1918		1919		1920	
Mar 31	Anchor	1	30	Mar 31	26	Mar 31	26	Mar 31	26
"	"	24	24	"	24	"	24	"	24
"	"	51	51	"	51	"	51	"	51
"	"	55	55	"	55	"	55	"	55
"	"	95	95	"	95	"	95	"	95
"	"	118	118	"	118	"	118	"	118
"	"	119	119	"	119	"	119	"	119
"	"	120	120	"	120	"	120	"	120
"	"	121	121	"	121	"	121	"	121
"	"	122	122	"	122	"	122	"	122
"	"	123	123	"	123	"	123	"	123
"	"	124	124	"	124	"	124	"	124
"	"	125	125	"	125	"	125	"	125
"	"	126	126	"	126	"	126	"	126
"	"	127	127	"	127	"	127	"	127
"	"	128	128	"	128	"	128	"	128
"	"	129	129	"	129	"	129	"	129
"	"	130	130	"	130	"	130	"	130
"	"	131	131	"	131	"	131	"	131
"	"	132	132	"	132	"	132	"	132
"	"	133	133	"	133	"	133	"	133
"	"	134	134	"	134	"	134	"	134
"	"	135	135	"	135	"	135	"	135
"	"	136	136	"	136	"	136	"	136
"	"	137	137	"	137	"	137	"	137
"	"	138	138	"	138	"	138	"	138
"	"	139	139	"	139	"	139	"	139
"	"	140	140	"	140	"	140	"	140
"	"	141	141	"	141	"	141	"	141
"	"	142	142	"	142	"	142	"	142
"	"	143	143	"	143	"	143	"	143
"	"	144	144	"	144	"	144	"	144
"	"	145	145	"	145	"	145	"	145
"	"	146	146	"	146	"	146	"	146
"	"	147	147	"	147	"	147	"	147
"	"	148	148	"	148	"	148	"	148
"	"	149	149	"	149	"	149	"	149
"	"	150	150	"	150	"	150	"	150
"	"	151	151	"	151	"	151	"	151
"	"	152	152	"	152	"	152	"	152
"	"	153	153	"	153	"	153	"	153
"	"	154	154	"	154	"	154	"	154
"	"	155	155	"	155	"	155	"	155
"	"	156	156	"	156	"	156	"	156
"	"	157	157	"	157	"	157	"	157
"	"	158	158	"	158	"	158	"	158
"	"	159	159	"	159	"	159	"	159
"	"	160	160	"	160	"	160	"	160
"	"	161	161	"	161	"	161	"	161
"	"	162	162	"	162	"	162	"	162
"	"	163	163	"	163	"	163	"	163
"	"	164	164	"	164	"	164	"	164
"	"	165	165	"	165	"	165	"	165
"	"	166	166	"	166	"	166	"	166
"	"	167	167	"	167	"	167	"	167
"	"	168	168	"	168	"	168	"	168
"	"	169	169	"	169	"	169	"	169
"	"	170	170	"	170	"	170	"	170
"	"	171	171	"	171	"	171	"	171
"	"	172	172	"	172	"	172	"	172
"	"	173	173	"	173	"	173	"	173
"	"	174	174	"	174	"	174	"	174
"	"	175	175	"	175	"	175	"	175
"	"	176	176	"	176	"	176	"	176
"	"	177	177	"	177	"	177	"	177
"	"	178	178	"	178	"	178	"	178
"	"	179	179	"	179	"	179	"	179
"	"	180	180	"	180	"	180	"	180
"	"	181	181	"	181	"	181	"	181
"	"	182	182	"	182	"	182	"	182
"	"	183	183	"	183	"	183	"	183
"	"	184	184	"	184	"	184	"	184
"	"	185	185	"	185	"	185	"	185
"	"	186	186	"	186	"	186	"	186
"	"	187	187	"	187	"	187	"	187
"	"	188	188	"	188	"	188	"	188
"	"	189	189	"	189	"	189	"	189
"	"	190	190	"	190	"	190	"	190
"	"	191	191	"	191	"	191	"	191
"	"	192	192	"	192	"	192	"	192
"	"	193	193	"	193	"	193	"	193
"	"	194	194	"	194	"	194	"	194
"	"	195	195	"	195	"	195	"	195
"	"	196	196	"	196	"	196	"	196
"	"	197	197	"	197	"	197	"	197
"	"	198	198	"	198	"	198	"	198
"	"	199	199	"	199	"	199	"	199
"	"	200	200	"	200	"	200	"	200

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Maintenance of Equipment of Sea World Marine Club
1911-1912

1911		1912		1913		1914		1915	
Mar 31	Balance	11.9	Apr 30	Mar 31	Balance	21.30	Apr 30	11.97	Apr 30
Apr 30	"	5.6	May 31	Apr 30	"	"	May 31	11.65	May 31
"	"	5.6	"	May 31	"	"	"	"	11.65
"	"	9.6	"	June 30	"	"	"	"	11.65
May 31	"	12.5	"	July 31	"	"	"	"	11.65
June 30	"	41	"	"	"	"	"	"	11.65
"	"	107	"	"	"	"	"	"	11.65
"	"	106	"	"	"	"	"	"	11.65
July 31	"	50	"	"	"	"	"	"	11.65
"	"	124	"	"	"	"	"	"	11.65

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Maintenance of Equipment Since 1900
1915

1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
<i>Tippecanoe</i>	<i>63</i>	<i>67</i>	<i>94</i>	<i>100</i>	<i>30</i>	<i>60</i>	<i>3</i>	<i>1016</i>	<i>1017</i>	<i>1018</i>	<i>1019</i>	<i>1020</i>	<i>1021</i>	<i>1022</i>	<i>1023</i>	<i>1024</i>	<i>1025</i>	<i>1026</i>	<i>1027</i>	<i>1028</i>	<i>1029</i>	<i>1030</i>

Sheet No. _____

Name _____

Address _____

Sheet No. 50

Name _____

Address _____

Moving Concrete Building Steel #2036.

1908					
Nov 30 To Voucher	72	1,000	1909	Feb 27 By Gen Barnes	55
" " " "	88	1,268			
" " " "		2,268			
		2,268			2,268

J. V. Miller Labor & Mat'l for					
1909			1909		
Feb 27 To Voucher	98	1,93	Feb 27 By L. M. Barnes	564	1,93
Mar 31 " "	116	03	Mar 31 " " "	3754	03
Aug 31 " "	115	2	Aug 31 " " "	4655	2
Nov 30 " "	127	315	Nov 30 " " "	5666	315
Dec 30 " "	124	85	Dec 30 " " "	6787	85
		621			621
1910			1910		
Mar 30 To Voucher		210	Mar 31 By Miller	1155	210
Mar 31 " "	119				

Sheet No. 51

Name
Address

Mining & Exploration Co. of N.J. Labor & Material

1909			1909		
May 30 To Voucher	89	261.61	May 30 By L.M. Inv.	1579	261.67
June 31 " "	87	2.60	June 31 " " "	1586	253.74
June 31 " "	90	263.31	June 31 " " "	3398	253.74
June 31 " "	13	40.30	June 31 " " "	3360	253.74
June 31 " "	26	41.51	June 31 " " "	4324	253.74
June 30 " "	107	15.50	June 30 " " "	5431	253.74
June 30 " "	107	18.20	June 30 " " "	5431	253.74
June 30 " "	107	18.20	June 30 " " "	5431	253.74
June 31 " "	124	7.40	June 31 " " "	6048	253.74
June 31 " "	124	7.40	June 31 " " "	6048	253.74
June 30 To Voucher	101	500	June 30 " L.M. Inv.	1701	500
July 31 " "	32	46.50	July 31 " " "	8400	4050
July 31 " "	59	13839	July 31 " " "	8608	13839
July 31 " "	88	15800	July 31 " " "	9021	15800
July 31 " "	49	11303	July 31 " " "	9230	31322
July 31 " "	58	17017	July 31 " " "	9323	700
July 31 " "	53	700	July 31 " " "	9483	3570
July 31 " "	147	3570	July 31 " " "	10183	500
July 31 " "	78	1706	July 31 " " "	10259	1706
July 31 " "	70	8870	July 31 " " "	10253	38201

Joseph Merkle Labor & Material for

1909			1909		
May 30 To Voucher	102	20	May 30 By L.M. Inv.	1579	20
May 31 " "	117	20	May 31 " Voucher	1201	20
May 31 " Invoiced	21601	20	May 31 " L.M. Inv.	2161	20
		78			78

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Name
Address

George Meister L.M. for

1910			1910		
Apr 30 To Voucher	9	150	Apr 30 By Invoice	1985	100
May 31 " "	114	25	May 31 " " "	2157	25
May 31 " "	88	25	May 31 " " "	2621	25
May 31 " "	101	25	May 31 " " "	4439	25
May 31 " "	140	25	May 31 " " "	5874	25
May 31 " "	105	25	May 31 " " "	7665	25
May 31 To Voucher	114	1700	May 31 By L.M. Inv.	1503	1700
June 30 " "	80	200	June 31 " " "	9588	200
June 30 " "	251	50	June 30 " " "	10176	55
June 31 " "	185	25	June 31 " " "	11458	110
June 30 " "	135	80	June 30 " " "	11986	78

Joseph Meister L.M. for

1910			1910		
July 31 To Voucher	88	130	July 31 By L.M. Inv.	2264	130

Sheet No. 55

Name

Address

Machine to cut Flats

2280

THE GREAT FALLS, 18 MAR 07, MONDAY, N.Y.					
1911				1911	
Feb 28 To Voucher	102	76.61	Feb 28 By Balley Dwyer	5462	2297
" " " "	103	15.55	Mar 31 " " "	8630	30
Mar 31 " " "	117	20			2227
" " " "	118	16			
		23.25			2327

W. H. Meadowcroft L & M

[illegible]

1913		814	1913	814
Aug. 29.	20	106	Sept. 31. B, L & M	1945
July 30	"	70	"	9233
"	"	91	"	10070
May 31.	"	181	"	10546
Apr. 30.	"	31	"	10448
"	"	181	"	10900
Feb. 30.	"	198	"	11005
Dec. 31.	"	137	"	11741
Nov. 30.	"	215	"	11790
Mar. 31.	"	361		
Apr. 30.	"	37		
"	"	69		
July 31.	"	131		

Sheet No.

Name _____
Address _____

Make One Pattern #3265

1913		1913	
July 26. To Linnher 12.41	1001	July 26. To Linnher 12.41	1001

Make one Set 12 Screens # 3268

Maple ONE Set 12 Screens # 3268	
July 28 To Voucher 120	July 28 By SSB to Inv 7255
Mar 31 To Voucher 39	Mar 31 By SSB to Inv 7222
" " 120	216

Sheet No. _____

Name _____

Address _____

Machine 75 Hydrate Lenses Blades #3270

1912		1913	
Mar 31 To Balance 120.		July 20 By S.S. B. L. 7000	50
		Mar 31 By S.S. B. L. 7225	13.88

1912

Machine Work on Clating Lenses #3253

Mar 31 To Balance 39.	355	Mar 31 By S.S. B. L. 7219	129.27
Apr 30 " " 120.	125.37	Apr 30 " " " 7347	135.52
" " " 140.	179	May 31 " " " 7466	82.06
" " " 140.	188.50	July 31 " " " 7590	673.37
May 31 " " 114.	582.88	July 31 " " " 7766	899.6
June 30 " " 125.	715.88	Apr 31 " " " 7864	113.91
July 31 " " 129.	879.6	Sept 30 " " " 7778	197.53
Aug 30 " " 116.	113.71	Oct 31 " " " 8095	632.73
Sept 30 " " 109.	197.53		
Oct 31 " " 36.	7.35		
" " " 122.	259.4		

Sheet No. _____

Name _____

Address _____

Machine Work on 1st East Side Peter Lenses #3304

1912		1913	
Mar 31 To Balance 68		Mar 31 By S.S. B. L. 7007	179.2
" " " 120.		Apr 30 " " " 7408	534.1
" " " 106.		May 31 " " " 7533	90.70
Apr 30 " " 140.		July 30 " " " 7678	245.56
May 31 " " 144.			
June 30 " " 62.			
" " " 120.			

Machine One Pattern Back #3271

1912		1913	
Mar 31 To Balance 120.		Mar 31 By S.S. B. L. 7000	99.61

Sheet No. _____

Name _____

Address _____

Machine 1 Round 1 1/2 Square Revolving Pile 1 Cover
#3277

1973 Mar 31 To Number 120 " " " 120	1973 Mar 31 By E. S. B. Co. Dr 7235 12081	
Make One Pattern #3290		
1973 Mar 31 To Number 120	1973 Mar 31 By E. S. B. Co. Dr 7285 1064	

Machine 22 Wooden Ringed #3289

1973 Mar 31 To Number 120	1973 Mar 31 By E. S. B. Co. Dr 7235 1131	
------------------------------	--	--

Sheet No. _____

Name _____

Address _____

Machine Patterns

#3218

1973 Mar 31 To Number 120 Apr 30 " " 146	1973 Mar 31 By E. S. B. Co. Dr 7236 5494 Apr 30 " " " 7067 5494	1241
Make Patterns #3319		

1412

1973 Mar 31 To Number 170 Apr 30 " " 146	1973 Mar 31 By E. S. B. Co. Dr 7236 3244 Apr 30 " " " 7062 3244	146
--	--	-----

Sheet No. _____

Name _____
Address _____

Machine 1x Carbon Black Rheostat #3362

1913			1913		
Apr 30	December	129	Apr 30	By 308 Indur	1101
"	"	77	"	"	11926
"	"	98	"	May 31	"
"	"	99	"	June 30	"
"	"	137	"	"	7753
"	"	120	"	"	2364
"	"	141	"	"	7667
"	"	144	"	"	11562
May 31	"	"	"	"	"
Apr 30	"	"	"	"	"

Machine 50 Wheel Brackit Castings #3314

1913			1913		
Apr 30	December	120	Apr 30	By 308 Indur	1101
"	"	780	"	"	11926

Sheet No. _____

Name _____
Address _____

Machine Work on Turb for SC Norton #3302

1913			1913		
Apr 30	December	120	Apr 30	By 308 Indur	1101
"	"	780	"	"	11926

Machine 90 Hooded Turb #3317

1913			1913		
Apr 30	December	120	Apr 30	By 308 Indur	1101
"	"	780	"	"	11926

Sheet No. _____

Name _____

Address

Motor Cases #3326

5-16 GREEN PAPER, 218 MARKET ST., NEWTON, N. J.

1913
Apr 30 To Voucher 146

^{17.5}
6776 Apr 30 By E. Hearn & Co's Inv. 7418.

6796

Machine 6 Long Annealing Pots & Covers. 1913 1,232.7

1913
Apr 30 To Voucher 116

2835	Apr 30 By E.B. Co Dr 7362
------	---------------------------

2835

Sheet No. _____

Name _____

Address

Make Addition To 3 Hand Wheels

THE STATE OF NEW YORK, ss. SENATE,

1913
Apr 30 To Voucher 1140

543 Apr 30. & Thong vob. Jan 7419.

1742

Make 11 Drawing Tables

1913
Apr 30 To Voucher 140

1913 #3339
3228 Apr 30 By E. S. Co. Inc. 7363

9.2.2.8

Sheet No. _____

Name _____
Address _____

Mach 200 Sheet Saw Lamination

#3341

1913 Apr 30 To Lumber 1100	1913 Apr 30 By E.B.B. on Dr 1420	11949
June 30 " " 110	77 June 30 " " " 1682	79

1913 Mach Outlets as Reported for Sub-During May 1913 #3350

Apr 30 To Lumber 1100	150 Apr 30 By E.B.B. on Dr 1061	450
May 31 " " 1100	01 May 31 " " " 7144	01

Mach Patterns

1913 Apr 30 To Lumber 1100	1913 #3352 003 Apr 30 By E.B.B. on Dr 1061	002
-------------------------------	---	-----

Sheet No. _____

Name _____
Address _____

Machine Shw Cost Sheet Pote

#3357

1913 May 31 To Lumber 67	1913 May 31 By E.B.B. on Dr 1534	2568
114	1534	

1913 Machine 118 Parting 1913 #3369

May 31 To Lumber 3369	10 May 31 By E.B.B. on Dr 1481	11137
June 30 " " 114	11127 June 30 " " " 7608	3207
July 31 " " 125	3207 July 31 " " " 7762	210
129	210	

Sheet No. _____

Name _____

Address _____

Mill & Slot 730 Carter
#3359

1913 May 31 To Lumber 125 June 30 " " 125	1913 May 31 By E.B.B. Co. In Dr 7404 June 30 " " " " 7616	1913 May 31 By E.B.B. Co. In Dr 7404 June 30 " " " " 7616
1913 May 31 To Lumber 125 June 30 " " 125	1913 May 31 By E.B.B. Co. In Dr 7405 June 30 " " " " 7611	1913 May 31 By E.B.B. Co. In Dr 7405 June 30 " " " " 7611

Make One End Each Tallow #2601-5-6
#3396

1913 May 31 To Lumber 125 June 30 " " 125	1913 May 31 By E.B.B. Co. In Dr 7405 June 30 " " " " 7611	1913 May 31 By E.B.B. Co. In Dr 7405 June 30 " " " " 7611
---	---	---

1913 May 31 To Lumber 125 June 30 " " 125	1913 May 31 By E.B.B. Co. In Dr 7405 June 30 " " " " 7611	1913 May 31 By E.B.B. Co. In Dr 7405 June 30 " " " " 7611
---	---	---

Make One End Each Tallow #2601-5-6
#3396

1913 May 31 To Lumber 125 June 30 " " 125	1913 May 31 By E.B.B. Co. In Dr 7405 June 30 " " " " 7611	1913 May 31 By E.B.B. Co. In Dr 7405 June 30 " " " " 7611
---	---	---

1913 May 31 To Lumber 125 June 30 " " 125	1913 May 31 By E.B.B. Co. In Dr 7405 June 30 " " " " 7611	1913 May 31 By E.B.B. Co. In Dr 7405 June 30 " " " " 7611
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Make One End Each Tallow #2601-5-6
#3396

1913 May 31 To Lumber 125 June 30 " " 125	1913 May 31 By E.B.B. Co. In Dr 7405 June 30 " " " " 7611	1913 May 31 By E.B.B. Co. In Dr 7405 June 30 " " " " 7611
---	---	---

Sheet No. _____

Name _____

Address _____

Make Frame for 3 Transfer Cases
#3355

1913 June 30 To Lumber 125 June 30 " " 125	1913 June 30 By E.B.B. Co. In Dr 7618 June 30 " " " " 7618	1913 June 30 By E.B.B. Co. In Dr 7618 June 30 " " " " 7618
--	--	--

1913 June 30 To Lumber 125 June 30 " " 125	1913 June 30 By E.B.B. Co. In Dr 7618 June 30 " " " " 7618	1913 June 30 By E.B.B. Co. In Dr 7618 June 30 " " " " 7618
--	--	--

Make 500 Sticks Rosin & Casein Separators
#3377

1913 June 30 To Lumber 125 June 30 " " 125	1913 June 30 By E.B.B. Co. In Dr 7618 June 30 " " " " 7618	1913 June 30 By E.B.B. Co. In Dr 7618 June 30 " " " " 7618
--	--	--

Sheet No. _____

Name _____

Address _____

Machine/Work out Lumber/Leif #3394

1913	June 30. To Lumber	125	1913	June 30 By J. B. Miller Lumber	1258
	July 31	129		July 31	210

1913	Machine/Work	Sheet Total 7 Groves	1913	2381	5132
Aug 31. To Lumber	116	Aug 31 By E. B. L. Lumber	1924	2381	5132
Sept 30	18	Sept 30	8038		

Sheet No. _____

Name _____

Address _____

Make One Each Lattens #2800-2801 #3078

1914	Jan 31. Lumber	127	1914	Jan 31 Edward B. Lumber	618

1914	Jan 31. Lumber	127	1914	Jan 31 Edward B. Lumber	1570

1914	Machine/Work	Sheet Total 7 Groves	1914	2381	5132
Jan 31. To Lumber	127	Jan 31 By E. B. L. Lumber	1924	2381	5132
		Jan 31	8038		

Sheet No. _____

Name
AddressMake One Each of Tables 1210-11-12-13-14
12610

1210-11-12-13-14

1210

Jan. 31	127	3927	Jan. 31 Edmund S. Bond Sr. 12610	3927
Feb. 28	131	630	Feb. 28 " " 12611	631

1211

Machine last Sunday 12611

July 28	131	7246	July 28 Edmund S. Bond Sr. 12611	7246
---------	-----	------	----------------------------------	------

Sheet No. _____

Name
AddressMake All Tables Cement Required by post
12614

1211-12-13-14

1211

Jan. 31	129	3125	Jan. 31 By 10 Edmund S. Bond Sr. 12610	3125
---------	-----	------	--	------

1212

Should be 12612

May 31	135	20	May 31 Edmund S. Bond Sr. 12616	12656
	143	1858	June 30 " " 12617	12626
	193	10248		
	13	2590		
	251	3727		

Sheet No. _____

Name _____

Address _____

Mechanical Shop at Cedar St. Studio
1891

1891	June 31. Voucher 193.	193	May 31. Lab. Inv. Sur. 1105.	193
1891	July 31. " 117.	117	June 31. " 1107.	117
1891	July 31. " 119.	119	July 31. " 1108.	119

1891	July 31. Voucher 196.	196	July 31. Cedar St. Studio. Sur. 1109.	196
------	-----------------------	-----	---------------------------------------	-----

Sheet No. _____

Name _____

Address _____

S. B. Franklin
S. B. Franklin

1891	July 31. Voucher 200.	200	1891	July 31. Lab. Inv. Sur. 1105.	1105
1891	July 31. " 119.	119	1891	July 31. " 1107.	1107

1891	Oct 31. Voucher 197.	197	1891	Oct 31. Cedar St. Studio. Sur. 1109.	1109
------	----------------------	-----	------	--------------------------------------	------

Sheet No.

Name
AddressMain Shaft Couplings (Lvs)
1866

July 31	Lumber	1118	July 31	Edwards & Co	11035	70
---------	--------	------	---------	--------------	-------	----

W. H. Mason & Son

July 31	Lumber	1118	July 31	S. & W.	11000	921
July 29	"	1126	July 29	"	11035	479

Sheet No.

Name
AddressMain Shaft Couplings (Lvs)
1866

July 31	Lumber	1122	July 31	Edwards & Co	11117	1641
---------	--------	------	---------	--------------	-------	------

Machines & Castings

July 31	Lumber	1122	July 31	Edwards & Co	11117	1030
---------	--------	------	---------	--------------	-------	------

Sheet No. _____

Name _____

Address _____

Machine 14 Steel Castings

#11261

July 31	Voucher	128	1606	July 31	RECEIVED	1173	1606
---------	---------	-----	------	---------	----------	------	------

Sheet No. _____

Name _____

Address _____

Machine One Pattern & 100 Castings Therefrom

#11262

July 31	Voucher	132	1316	July 31	RECEIVED	1173	1316
---------	---------	-----	------	---------	----------	------	------

Machine Castings #1209 per #12 12650

#12570

July 31	Voucher	132	1606	July 31	RECEIVED	1173	1606
---------	---------	-----	------	---------	----------	------	------

Machine 12 Special Down Drivers

#12570

July 31	Voucher	132	1606	July 31	RECEIVED	1173	1606
---------	---------	-----	------	---------	----------	------	------

Name

Name

Address

Make Dix Billing Pade
#14278

124715

THE BOSTON PUBLIC LIBRARY							
1916	July 31	Touched	132	1916	July 31	M.C. Inc. Recd. Payroll	11729
							638

Make Pattern

4271

July 31	Tranche 135	369	July 31	ESB Co.	Per. 11732	369
---------	-------------	-----	---------	---------	------------	-----

Name _____

Name _____

4.2.2.

Make Patterns 30x-30x-30x
#4x81

16. 11. 2015

1916	July 31	Vancouver	132	938	July 31	E.S.B.C.	No. 11731	934
------	---------	-----------	-----	-----	---------	----------	-----------	-----

Machine Three Castings
4854

C. J. R.
42814

July 31	Vanhook	122	3866	July 31	Amid M. H. S. E.	11739	3866
---------	---------	-----	------	---------	------------------	-------	------

110

2

Sheet No. _____

Name _____

Address _____

Machine Paul Carl Iron Range
#4292

July 31	1906	122	1006	July 31	1906	11716	1006
---------	------	-----	------	---------	------	-------	------

Machine 1000-8 hole Phil. Iron Range
#4292

July 31	1906	122	1006	July 31	1906	11716	1006
---------	------	-----	------	---------	------	-------	------

Sheet No. _____

Name _____

Address _____

Machine One Master Pattern
#4292

July 31	1906	122	1006	July 31	1906	11716	1006
---------	------	-----	------	---------	------	-------	------

Machine 1000-8 hole Phil. Iron Range
#4292

July 31	1906	122	1006	July 31	1906	11716	1006
---------	------	-----	------	---------	------	-------	------

Sheet No. _____

Name _____

Address _____

Sheet No. 118

Name _____

Address _____

J. Meilner Linn

1911	Dec 31	To Voucher	121	1911	Dec 31	By Linn	4952	21
1913	Sept 30	To Linn	121	R Murphy	Sept 30	By Linn	5261	30
1913	Dec 31	" "	109	1913	Sept 30	" "	8060	15
		" "	156	1913	Dec 31	" "	8113	06

M. Mills Linn

1911	Dec 30	To Voucher	122	1911	Dec 30	By Linn	527	30
------	--------	------------	-----	------	--------	---------	-----	----

Machine for Iron mix #2097

1911	Dec 29	To Voucher	144	1911	Dec 29	By Linn	5544	625
1911	Mar 30	" "	127	1911	Mar 30	" "	5636	2472
				1907				11077

Sheet No. _____

Name _____
Address _____

Machine Castings #32257

1913	1913	1913	1913
June 31 To Lumber 155	5222	June 31 By Lumber Co. Lm. 7000	5222
July 28 " " 124	12490	July 28 " " " " 7149	12490
	13012		13012

1913	1913	1913	1913
July 28 To Lumber 124	3950	July 28 By Lm. 7000	3950
Mar 31 To Lumber 120	525	Mar 31 By Lm. 7000	525

1913	1913	1913	1913
July 28 To Lumber 124	1846	July 28 By Lm. 7000	1846

Sheet No. _____

Name _____
Address _____

A. B. Maurlin L. M.

1913	1913	1913	1913
June 30 To Lumber 150	68	June 30 By Lm. 7000	68

1913	1913	1913	1913
July 31 To Lumber 129	6264	July 31 By Lm. 7000	6262
Aug 31 " " 116	3013	Aug 31 " " " " 7172	3013
Sept 30 " " 27	270	Sept 30 " " " " 7783	270
	24		24

1913	1913	1913	1913
July 31 To Lumber 129	3608	July 31 By Lm. 7000	3608
Aug 31 " " 116	1506	Aug 31 " " " " 7723	1506

Sheet No. _____

Name _____
Address _____Machine Annualing Total Cover
#3454

1912		1913		1914	
July 31	20 Lumber 109	1129	July 31	By S.B. Co. Lumber 7759	1129
Sept 30	" " 109	250	Sept 30	" " " 7790	250

1913		Make 170 Detail 04B #3426		1914		
July 31	To Lumber	129	855	July 31	By S.B. Co. Lumber	855
Aug 31	" "	116	248	Aug 31	" " " "	248

1913		Machine/Carling #3466		1914		1915	
Aug 30	To Lumber	71	28 Aug 31	By S.B. Co. Lumber	7577	4125	
Sept 30	" "	116	11077	Sept 30	" " " "	7790	4714
		109	4714				

Sheet No. _____

Name _____
Address _____Machine Work on Pump
#3449

1912		1913		1914	
Aug 31	20 Lumber 116	787	Aug 31	By S.B. Co. Lumber 7794	787

1913		1914		1915	
Make Patterns as required for Inspecting Machinery					
Aug 31	J. Lumber 116	6409	Aug 31	By S.B. Co. Lumber 7796	6409

1913		1914		1915		
Make 100 Wheel Pins #3457						
Aug 31	20 Lumber	116	994	Aug 31	By S. B. Co. Lumber	7795
Sept 30	" "	30	298	Sept 30	" " " "	8036

Sheet No. _____

Name _____
Address _____Make Siller
13464

1912		1913		1914		1915	
Aug 31	To Lumber	116	981	Aug 31	By B.B. Co Lumber	7912	981
Sept 30	"	12	120	Sept 30	"	8027	1655
"	"	28	300	Oct 31	"	8139	2197
"	"	109	930	Nov 31	"	8196	980
C.F. 31	"	57	300	Dec 31	"	8700	800
"	"	50	1838	Jan 30	"	8796	950
"	"	80	57	Feb 31	"	9199	4594
Jan 31	"	35	425	Mar 31	"	9139	63
"	"	120	30	Apr 30	"	7904	63
"	"	197	500				
Mar 31	"	15	850				
June 30	"	16	485				
"	"	106	525				
July 31	"	26	2120				
"	"	47	850				
"	"	86	850				
1915	"	88	23				

Misc work done for Mr. Hutchings

1912		1913		1914		1915	
Aug 31	To Lumber	116	3131	Aug 31	By M.R. Co Lumber	7937	5937
"	"	16	125	Sept 30	"	8002	5599
"	"	23	10				
"	"	38	226				
"	"	26	75				
"	"	60	69				
"	"	77	100				
"	"	106	1935				
Sept 30	"	18	246				
"	"	48	5312				
"	"	57	689				
"	"	74	255				
"	"	86	2769				
"	"	180	172				
1915	"	129	2142				

To J. L. Co 532

Make Siller (Patterson) 1350

1912		1913		1914		1915	
Aug 31	To Lumber	116	56	Aug 31	By B.B. Co Lumber	7999	86
Sept 30	"	109	9163	Sept 30	"	7990	9163

Sheet No. _____

Name _____
Address _____Make 4 Maple Blocks
13482

1913		1914		1915	
Sept 30	To Lumber	109	128	Sept 30	By B.B. Co Lumber 7990
					158

Machine Parts 13472

1913				Machine Parts				1913 #3422			
Sept 30	To Lumber	109	4916	Sept 30	By B.B. Co Lmr	7991	4916				
Oct 31	" "	122	3509	Oct 31	" " "	8106	3509				

Make Siller for three Jinks

1913		Name Details		1914		1915	
Sept 30	To Lumber	109	6585	Sept 30	By B.B. Co	7998	6500
Oct 31	"	122	5510	Oct 31	"	8107	5510
Nov 30	"	106	358	Nov 30	"	8228	355

Sheet No. _____

Name _____
Address _____Machine Casting Pattern
#3498

1873	Sept 30	To Lumber	109	10423	Sept 30	By E. S. B. Co. Inc	7991	10423

1913

Make 3 Flanges #3499

Sept 30	To Lumber	109	1807	Sept 30	By E. S. B. Co. Inc	7991	1807
Oct 31	"	122	268	Oct 31	"	"	268

1913

Make Wood Blocks

Sept 30	To Lumber	109	474	Sept 30	By E. S. B. Co. Inc	7991	474
Oct 31	"	122	2073	Oct 31	"	"	2073

Sheet No. _____

Name _____
Address _____Motor Brake Forks
#3511

1873	Sept 30	To Lumber	109	5530	Sept 30	By E. S. B. Co. Inc	7991	5530

1913

Make 400 Stages Rosin & Beeswax #3513

Sept 30	To Lumber	109	900	Sept 30	By E. S. B. Co. Inc	8032	900
---------	-----------	-----	-----	---------	---------------------	------	-----

1913

Make 2 Pedestals #3516

Sept 30	To Lumber	109	1213	Sept 30	By E. S. B. Co. Inc	7991	1213
---------	-----------	-----	------	---------	---------------------	------	------

Sheet No. _____

Name
AddressMachine One Year
#3518

1911	Sept 30	To Lumber	109	577	1912	Sept 30	By E. C. W. Co. Inc.	8044	577
------	---------	-----------	-----	-----	------	---------	----------------------	------	-----

1912	Oct 31	To Lumber	105	4194	Oct 31	By E. C. W. Co. Inc.	8107	4194
Nov 30	"	"	111	6111	Nov 30	"	8218	6111
Dec 31	"	"	116	179	Dec 31	"	8321	179

1912	Oct 31	To Lumber	105	3911	Oct 31	By E. C. W. Co. Inc.	8101	3911
------	--------	-----------	-----	------	--------	----------------------	------	------

Sheet No. _____

Name
AddressMachine Wood & Iron Works for Saw & Mill Paper
#3522

1912	Oct 31	To Lumber	105	944	1913	Oct 31	By E. C. W. Co. Inc.	8106	944
Nov 30	"	"	111	1332	Nov 30	"	8216	1332	

1913	Oct 31	To Lumber	105	3172	Oct 31	By E. C. W. Co. Inc.	8101	3172
------	--------	-----------	-----	------	--------	----------------------	------	------

1913	Oct 31	To Lumber	105	884	Oct 31	By E. C. W. Co. Inc.	8106	884
------	--------	-----------	-----	-----	--------	----------------------	------	-----

Sheet No. _____

Name _____
Address _____Make Pattern
13545

1913	Oct 31	To Lumber	122	20	Oct 31	By E. B. Caden	8107	20
	Nov 30	"	141	256	Nov 30	"	8228	256

1913	Oct 31	To Lumber	122	2422	Oct 31	By E. B. Caden	8107	2422

1913	Oct 31	To Lumber	122	201	Oct 31	By E. B. Caden	8107	201

Sheet No. _____

Name _____
Address _____Make One Back Cloth #2745-64-65-66
13535

1913	Oct 31	To Lumber	122	1136	Oct 31	By E. B. Caden	8107	1136

1913	Oct 31	To Lumber	122	788	Oct 31	By E. B. Caden	8107	788
	Nov 30	"	141	2926	Nov 30	"	8228	2926

1913	Oct 31	To Lumber	122	449	Oct 31	By E. B. Caden	8107	449
	Nov 30	"	141	3708	Nov 30	"	8228	3708
	Dec 31	"	156	3708	Dec 31	"	8307	3708
	Jan 31	"	147	1382	Jan 31	"	8428	1382

Mc

J

Sheet No. _____

Name _____
Address _____

Make One Each

#3541

1912

Oct 31 To Lumber 122

524

Oct 31 By E.S.B. Co. Lnr 8107

524

1912

Make up Sew Salines Solution #3541

Nov 30 To Lumber 35
Dec 31 " 127Nov 30 By F.B. Co. Lnr 8107 3140
Dec 31 " " " " 8100 10103140
1010

1912

Make One Patroller

Nov 30 To Lumber 148

3274

Nov 30 By E.S.B. Co. Lnr 8107

3274

Sheet No. _____

Name _____
Address _____Make One Each Patroller #411-12-13-14-15
#3562

1912

Nov 30 To Lumber 148
Dec 31 " 1561481
4164Nov 30 By F.B. Co. Lnr 8107
Dec 31 " " 81071481
4164

1912

Make Lantern Shades for H.V. #3587

Dec 31 Lumber 76
Nov 31 " 156
Oct 31 " 156
Mar 31 " 156
Apr 30 " 116550
1898
8328
1079
1675
1134Nov 31 By F.B. Co. Lnr 8107
Dec 31 " " " " 8107
Mar 31 " " " " 8107
Apr 30 " " " " 81072148
5325
1079
1678
534
1134

1912

Make 20 Castings for #1107-21

Dec 31 Lumber 156
Jan 31 " 1273757
1049Nov 31 By F.B. Co. Lnr 8107
Dec 31 " " " " 81073757
1049

Mc

N

J

Sheet No. _____

Name
Address

Machines & Castings #3574

1912
Dec 31 Voucher 156. 1917 Dec 31 E.B.B. Co. Inc. 8351 1917

1912
Dec 31 Voucher 156. 1917 Dec 31 E.B.B. Co. Inc. 8351 1917
Jan 31 " 174 1918 Jan 31 " " " 8467 1918

1912
Dec 31 Voucher 156. 1917 Dec 31 E.B.B. Co. Inc. 8351 1917

Sheet No. _____

Name
Address

Make Out Pattern #3583

1912
Dec 31 Voucher 156. 1917 Dec 31 E.B.B. Co. Inc. 8351 1917

1912
Dec 31 Voucher 156. 1917 Dec 31 E.B.B. Co. Inc. 8351 1917

1912
Dec 31 Voucher 156. 1917 Dec 31 E.B.B. Co. Inc. 8351 1917

Sheet No. _____
Name _____
Address _____

Make Pattern as Required by Drawing
#3570

1919	July 28	Donker	156	4900	July 31	S.S. C. Lm	1351	4950
	Jan 31	"	157	1910	Jan 31	"	1367	170

1919	Jan 31	Donker	157	3159	Jan 31	Edwin S. B. Lm	5167	3159
------	--------	--------	-----	------	--------	----------------	------	------

1919	Jan 31	Donker	157	615	Jan 31	Edwin S. B. Lm	5167	615
------	--------	--------	-----	-----	--------	----------------	------	-----

Sheet No. _____
Name _____
Address _____

Machine Work to Make & Assemble Hydraulic Cylinders
#3610

1919	July 28	Donker	1311	24123	July 28	S.S. C. Lm	5153	24439
	Mar 31	"	106	316	Mar 31	"	5171	4628
	Apr 30	"	110	4628	Apr 30	"	5188	24371
	May 31	"	116	23	May 31	"	5170	111010
	Jun 30	"	116	24171	Jun 30	"	5161	1,2,2,2
	Jun 30	"	103	781				
		"	115	1898				
		"	114	38345				
		"	27	242				
		"	166	549				

1919	July 28	Donker	1311	979	July 28	Edwin S. B. Lm	5171	979
	Mar 31	"	106	1770	Mar 31	"	5166	1770
	Apr 30	"	116	3917	Apr 30	"	5171	3917

1919	Mar 31	Donker	106	515	Mar 31	Edwin S. B. Lm	5171	515
	May 31	"	103	328	May 31	"	5166	328

Sheet No. _____

Name
Address

Make Tattlers up for B.O. #36.30

1914		1914		1914	
Mar 31	Lumber	106.	1259	Mar 31	By E.S.B. Co. Inc. 1874
					1259

1914

Make Tattlers 1914 #36.31

Mar 31	Lumber	106.	3156	Mar 31	By E.S.B. Co. Inc. 1874
					3156

1914

Make 9 Tattlers 1914 #36.32

Mar 31	Lumber	106.	4105	Mar 31	By E.S.B. Co. Inc. 1874
Apr 30	"	116.	21	Apr 30	" 1873
					21

Sheet No. _____

Name
Address

Make Lumber B.O. #36.40

1914		1914		1914	
Mar 31	Lumber	106.	1894	Mar 31	By E.S.B. Co. Inc. 1874
					1894

1914

Make Lumber for Banking 2 Top Eggs 1914

Mar 31	Lumber	106.	630	Mar 31	By E.S.B. Co. Inc. 1874
Apr 30	"	31	1104	Apr 30	" 1871
	"	110	30	May 31	" 1872
	"	115	325	June 30	" 1864
May 31	"	68	15	July 31	" 9062
	"	101	370		12384
	"	111	21		
	"	115	577		
June 30	"	25	204		
	"	27	230		
	"	103	09		
July	"	106	254		
	"	136	10384		

1914

Make 6 Sulphur Totals 1914

Apr 30	Lumber	47	278	Apr 30	By E.S.B. Co. Inc. 1874
	"	57	201	May 31	" 1875
	"	94	10	June 30	" 9003
	"	107	10		
	"	116	4476		
	"	110	7362		
	"	61	1800		
	"	103	1508		
	"	107	58		
	"	115	4669		
June 30	"	27	12384		

143

Sheet No. _____

Name
AddressMake One Gate & Guide for Same
#3641

1911		1912		1913		1914	
Apr 30	Lumber	116	840	Apr 30	Edwin S. B. to Dr	8813	840
May 31	"	103	25	May 31	"	8876	25

1911		Machine 4 Leasing of		1912		Machine 4 Leasing of	
Apr 30	Lumber	116	2740	Apr 30	Edwin S. B. to Dr	8818	2740

1911		Machine 6 Leasing of		1912		Machine 6 Leasing of	
Apr 30	Lumber	116	3826	Apr 30	Edwin S. B. to Dr	8813	3826
May 31	"	112	"	May 31	"	"	"

144

Sheet No. _____

Name
AddressMake One Sattin #146
#3665

1911		1912		1913		1914	
May 31	Lumber	115	4027	May 31	Edwin S. B. to Dr	8876	4027

1911		Machine 4 Leasing of		1912		Machine 4 Leasing of	
May 31	Lumber	115	3024	May 31	Edwin S. B. to Dr	8876	3024

1911		Machine 11 Leasing of		1912		Machine 11 Leasing of	
May 31	Lumber	115	2802	May 31	Edwin S. B. to Dr	8817	2802
June 30	"	106	2898	June 30	"	9009	2898

Mc
N
C

149

Sheet No. _____

Name _____
Address _____Make Necessary Patterns for Film Dyeing Machine
#3702

1921

July 31
Aug 30Lumber
"136
90

1921

3778 July 31
419 Aug 30E. B. Co. Inc
"9112
9188
3778
719

Sheet No. _____

Name _____
Address _____Make One Each Pattern #1163-1163
#3711

150

1921

July 31
Aug 30Lumber
"136
90

1921

4178 July 31
437 Aug 30E. B. Co. Inc
"9114
9189
4178
237

1921

July 31
Aug 30Lumber
"136
90

1921

4176 July 31
4176 Aug 30E. B. Co. Inc
"9113
4176

1921

Aug 30
Aug 30Lumber
"90
90

1921

2001 Aug 30
2001 Aug 30E. B. Co. Inc
"9190
2001

1921

July 31
Aug 30
Sept 30Lumber
"
"136
90
95

1921

1440 July 31
75 Aug 30
135 Sept 30E. B. Co. Inc
"
"9193
9208
9311
1440
23
135

1921

Aug 30
Aug 30Lumber
"90
90

1921

4099 Aug 30
4099 Aug 30E. B. Co. Inc
"9191
4099Mc
O

Sheet No. _____

Name _____
Address _____Make Out Bank & Div for Blanketing Cash
13951

1911		1912		1912		1912	
Nov 30	Lumber	21	176	Nov 30	E. B. Co. Inc.	911	1702
Dec 31		109	1025	Dec 31	"	958	88711
		152	967				
		152	8607				

1911		1912		1912		1912	
Nov 30	Lumber	61	10	Nov 30	J. B. Co. Inc.	9171	673
Dec 31		94	208	Dec 31	"	958	877
		109	151				
		152	577				

1911		1912		1912		1912	
Nov 30	Lumber	91	2316	Nov 30	J. B. Co. Inc.	9171	3327
Dec 31		109	1011	Dec 31	"	962	543
		152	543				

Sheet No. _____

Name _____
Address _____Make Out Record Cabinets
13973

1911		1912		1912		1912	
Nov 30	Lumber	109	1517	Nov 30	J. B. Co. Inc.	9171	1517
Dec 31		116	61	Dec 31	"	9772	1517

1911		1912		1912		1912	
Nov 30	Lumber	109	1079	Nov 30	E. B. Co. Inc.	910	1079

1911		1912		1912		1912	
Nov 30	Lumber	109	573	Nov 30	E. B. Co. Inc.	911	573

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107

Sheet No. _____

Name _____
Address _____Make 3 Wood Models of Pulley for Clothing Machine
#2715

1911		1912		1913		1914	
Nov 30	Luncher	109	39	Nov 30	E. B. B. Co. Inc	95.16	39
Dec 31	"	152	607	Dec 31	" "	96.09	607

1911		1912		1913		1914	
Nov 30	Luncher	109	39	Nov 30	E. B. B. Co. Inc	95.17	35
Dec 31	"	152	607	Dec 31	" "	95.99	302

1911		1912		1913		1914	
Dec 31	Luncher	136	110	Dec 31	E. B. B. Co. Inc	4601	2998
1915	"	152	3888	Jan 31	" " "	9670	1014
Jan 31	"	138	1014	Mar 31	" " "	9514	675
Mar 31	"	171	675				

158

Sheet No. _____

Name _____
Address _____Make One Punch Die for Blanking Part
#2773

1911		1912		1913		1914	
Dec 31	Luncher	136	180	Dec 31	E. B. B. Co. Inc	9603	1107
1915	"	152	1722	Jan 31	" " "	9670	3200
Jan 31	"	138	3600				

1911		1912		1913		1914	
Dec 31	Luncher	136	51	Dec 31	E. B. B. Co. Inc	9601	1114
1915	"	152	1083	Jan 31	" " "	9670	1215
Jan 31	"	138	1215				

1911		1912		1913		1914	
Dec 31	Luncher	152	537	Dec 31	E. B. B. Co. Inc	9600	537

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Sheet No. _____

Name _____

Address _____

Make Outlines
13173

1915	Jan 31	Voucher	138	219	Jan 31 By Edmund B. Borden 9763	219
	Feb 28	"	137	168	Feb 28 " " 9763	168

1915	Jan 31	Voucher	138	320	Jan 31 By Edmund B. Borden 9763	320
	Feb 27	"	137	320		

1915	Apr 30	Voucher	220	242	Apr 30 By Edmund B. Borden 9763	242
	"	"	57	71	May 31 " " 9763	71
	May 31	"	57	89		89

Sheet No. _____

Name _____

Address _____

Master Lathrop for School Board
13174

1916	Jan 31	Voucher	140	2116	Jan 31 Edmund B. Borden 10127	2116
------	--------	---------	-----	------	-------------------------------	------

1916	Jan 31	Voucher	140	100	Jan 31 Edmund B. Borden 10127	100
------	--------	---------	-----	-----	-------------------------------	-----

1916	Feb 27	Voucher	140	2116	Feb 27 Edmund B. Borden 10127	2116
------	--------	---------	-----	------	-------------------------------	------

Sheet No. _____

Name _____

Address _____

Male Shaft Couplings
Hoslobb

1916		1917		1918	
July 29	Coupler	107	21	July 29	Coupler
"	"	126	710	"	"

1916		1917		1918	
July 29	Coupler	126	333	July 29	Coupler
"	"	"	"	"	"

1916		1917		1918	
Mar 31	Coupler	86	20	Mar 31	Coupler
"	"	94	100	"	"
Apr 30	"	67	10	"	"
"	"	86	276	"	"
"	"	94	110	"	"

Sheet No. _____

Name _____

Address _____

Machine Co. L. S. Paper
Hoslobb

1916		1917		1918	
Mar 31	Coupler	119	1223	Mar 31	Coupler
"	"	"	"	"	"

1916		1917		1918	
Mar 31	Coupler	119	1223	Mar 31	Coupler
"	"	"	"	"	"

1916		1917		1918	
Mar 31	Coupler	94	108	Mar 31	Coupler
"	"	105	108	"	"
Apr 30	"	105	108	"	"
"	"	105	108	"	"
"	"	105	108	"	"

Sheet No. _____

Name _____

Address _____

Make one Bushing #1179

May 31	Voucher	125	1898	May 31	St. G. Ave. Carb. Bk.	11205	965
--------	---------	-----	------	--------	-----------------------	-------	-----

Make Wood Columns #1181

May 31	Voucher	125	1898	May 31	E.P. Ave.	Int. 11205	1695
--------	---------	-----	------	--------	-----------	------------	------

Make Pattern 30112 #1185

May 31	Voucher	125	1898	May 31	E.P. Ave.	Int. 11205	216
--------	---------	-----	------	--------	-----------	------------	-----

Sheet No. _____

Name _____

Address _____

Machining 21 C.D. Manifold #1186

May 31	Voucher	125	1898	May 31	E.P. Ave.	Int. 11205	1868
June 30	"	108	1898	June 30	"	" 11570	2951

Machine 6 C.D. Refrigeration Pot Corros

May 31	Voucher	125	1898	May 31	E.P. Ave.	Int. 11205	1617
June 30	"	108	1898	June 30	"	" 11570	762

Make Preliminary Drawings for Lexington Restaurant E.S.B. & Aug. 4503

June 30	Voucher	101	1898	June 30	M. G. Ave.	Int. 11451	572
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Sheet No. _____

Name *Misses Religious Savings Association with the Election*
Address *of Building for Training School, N.Y.C.*

<i>June 30</i>	<i>Voucher</i>	<i>105</i>	<i>1303 June 30 M.E. Soc.</i>	<i>11487</i>	<i>1303</i>
<i>July 31</i>		<i>132</i>	<i>13518 July 31 " "</i>	<i>11682</i>	<i>4354</i>

Make Patterns #4229

<i>June 30</i>	<i>Voucher</i>	<i>105</i>	<i>901 June 30 E.D.B. Co.</i>	<i>11231</i>	<i>901</i>
----------------	----------------	------------	-------------------------------	--------------	------------

Make 50 Wooden Plugs #4231

<i>June 30</i>	<i>Voucher</i>	<i>105</i>	<i>2115 June 30 M.E. Church Pl.</i>	<i>11534</i>	<i>915</i>
<i>July 31</i>		<i>22</i>	<i>2448 July 31 " "</i>	<i>11702</i>	<i>946</i>
		<i>132</i>			

Sheet No. _____

Name *Make Bus Voucher*
Address *#4235*

<i>June 30</i>	<i>Voucher</i>	<i>105</i>	<i>14 June 30 M.E. Church Pl.</i>	<i>11583</i>	<i>165</i>
<i>July 31</i>		<i>121</i>	<i>3830 July 31 " "</i>	<i>11701</i>	<i>3668</i>
					<i>4113</i>

Make 5 Edging Samples #4235

<i>June 30</i>	<i>Voucher</i>	<i>105</i>	<i>335 June 30 M.E. Soc.</i>	<i>11712</i>	<i>335</i>
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Make Patterns #4237

<i>June 30</i>	<i>Voucher</i>	<i>105</i>	<i>1021 June 30 M.E. Church Pl.</i>	<i>11566</i>	<i>1031</i>
<i>July 31</i>		<i>122</i>	<i>1171 July 31 " "</i>	<i>11712</i>	<i>111</i>

Address

Name Machine Work on 2 Rings for Red Leon Erius
Address 1111 1/2 St.

115 11 2 3 4

July 31	Touched	132	12	July 31	ES.DC. E.L.H.S. 111	1200
---------	---------	-----	----	---------	---------------------	------

Machine Pop of Carling for Bailing Pot.

July 31	Voucher	132	1.05	July 31	Am. H. M. C.	11709	1.05
---------	---------	-----	------	---------	--------------	-------	------

Make One Pattern #63145

July 31	Voucher 132	1315	July 31	Annals of the N. H. 11715	1315
---------	-------------	------	---------	---------------------------	------

McGall Mr.

52

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N
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30

Mr McCall LxM.

1212

82
633

Mc

QZ

[illegible]

Sheet No. 3Name
Address

Nickel Hydrate

2105

1909

Aug 31 To Voucher 107

" " " 108

" " " 109

Sept 30 " " 111

" " " 112

" " " 113

Oct 30 " " 102

" " " 103

" " " 104

Nov 30 " " 101

" " " 102

" " " 103

Dec 31 " " 131

" " " 132

" " " 133

Jan 31 " " 115

" " " 116

" " " 117

Feb 28 " " 90

" " " 91

" " " 102

" " " 103

" " " 104

" " " 116

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" " " 110

1909

Aug 31 By C.S. B. Jan 1295

" " " 1374

" " " 1450

" " " 1504

" " " 1625

" " " 1704

" " " 1796

" " " 1883

" " " 2006

" " " 2079

" " " 2267

" " " 2321

" " " 2538

" " " 2700

" " " 2870

" " " 3010

" " " 3170

" " " 3319

" " " 3450

" " " 3500

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" " " 5000

Sheet No. 3Name
AddressNickel Hydrate 8
Ramp 3021

1911		1911			
Feb 25 To Voucher	102	297.45	Arch January	3094.50	
" " " "	103	29.58	Feb 28 By Cashier	3426	79.54
" " " "	104	59.15	Mar 31	3592	116.83
Mar 31	105	81	Apr 30	3787	126.54
" " " "	106	166	May 31	3976	183.24
" " " "	107	76.95	June 30	4136	205.89
" " " "	108	38.20	July 31	4294	254.91
Apr 30	109	58.81	Aug 31	4730	359.41
" " " "	110	66.87	Sept 30	4881	355.29
" " " "	111	61	Oct 31	5031	378.46
May 31	112	68.82	Nov 30	5181	397.78
" " " "	113	84.41	Dec 31	5322	356.09
June 30	114	134.09	Jan 31	5464	372.49
" " " "	115	466	Feb 29	5599	402.98
" " " "	116	670.5	Mar 30	5755	466.48
July 31	117	547.5	Apr 30	5861	519.26
" " " "	118	1024.6	May 31	6025	579.35
" " " "	119	172	June 29		579.35
Aug 31	120	124			
" " " "	121	7180			
" " " "	122	1797			
Sept 30	123	9124			
" " " "	124	4076			
" " " "	125	1.52			
Oct 31	126	163.29			
" " " "	127	9670			
" " " "	128	523			
Nov 30	129	29.52			
" " " "	130	29.66			
" " " "	131	52.166			
Dec 30	132	19.598			
Jan 31	133	2300.9			
Feb 29	134	1724.7			
Mar 30	135	1652.98			
Apr 30	136	166.42			
May 31	137	519.26			
June 29	138	579.35			
		8776.68			
Apr 30 To Voucher 110		3350	Apr 30 By SS Bond	7307	3350

Sheet No. 7Name
AddressCharles Nicolai Ltr

1911		1911			
June 30 To Voucher	45	440	June 30 By SS Bond	4355	444
June 29	57	17.5	June 29	6116	19.5
Aug 31	121	55	Aug 31	6418	32.2
Oct 31	64	316	Oct 31	6680	27.4
		703			40.8
May 30	135	168	May 31	11442	168

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Wai Ling Patter

4057

1915		1916		1917	
<i>Best Good</i>	<i>103</i>	<i>Best Good</i>	<i>103</i>	<i>Best Good</i>	<i>103</i>
<i>Apr 20</i>	<i>103</i>	<i>Apr 20</i>	<i>103</i>	<i>Apr 20</i>	<i>103</i>
<i>May 31</i>	<i>103</i>	<i>May 31</i>	<i>103</i>	<i>May 31</i>	<i>103</i>
<i>June 30</i>	<i>103</i>	<i>June 30</i>	<i>103</i>	<i>June 30</i>	<i>103</i>

Sheet No. _____

Name _____
Address _____

Sheet No. _____

Name _____
Address _____

New Equipment for Mrs. Dept.
#151

1944
Apr 20 Voucher 94 1.50 Apr 25 P.O. E. Mrs. B. W. H. 11.50 1.50

Sheet No. _____

Name _____
Address _____

Sheet No. _____

Name _____
Address _____

50

E. Has. Norton St 711

1913

Mar 31	To Invoice	120.
Apr 30	" "	140.
May 31	" "	115.
June 30	" "	120.
July 31	" "	729.
Aug 31	" "	116.
Sept 30	" "	129.
Oct 31	" "	51.
Nov 30	" "	172.
Dec 31	" "	129.
Jan 31	" "	156.
Feb 28	" "	127.
Mar 31	" "	134.
Apr 30	" "	106.
May 31	" "	116.
June 30	" "	106.
July 31	" "	136.
Aug 31	" "	95.
Sept 30	" "	130.
Oct 31	" "	152.
Nov 30	" "	776.
Dec 31	" "	108.

1913

Mar 31	By LYM Inv	7301.	54.
Apr 30	" " "	7113.	125.
May 31	" " "	7554.	111.
June 30	" " "	7704.	94.
July 31	" " "	7828.	60.
Aug 31	" " "	7946.	48.
Sept 30	" " "	8063.	69.
Oct 31	" " "	8166.	170.
Nov 30	" " "	8293.	89.
Dec 31	" " "	8415.	50.
Jan 31	" " "	8526.	81.
Feb 28	" " "	8611.	16.
Mar 31	" " "	8725.	49.
Apr 30	" " "	8840.	29.
May 31	" " "	8931.	189.
June 30	" " "	9130.	24.
July 31	" " "	9346.	05.
Aug 31	" " "	9576.	51.
Sept 30	" " "	10776.	27.
Oct 31	" " "	11600.	180.

Necessary Repairs on Glass Exhibition Case

1913

May 31 To Cashier inv.

1913

25 May 31 By S B Co Inv 7452.

62

Sheet No. _____

Name _____
Address _____

Necessary Work on Ford Auto. #3307

1913	June 30 To Cash	44	15	1914	June 30 By B.S. Co. Dr	1598	65
------	-----------------	----	----	------	------------------------	------	----

Sheet No. 150

Name _____
Address _____

New style trap #2289

1911	Mar 31 To Voucher	117	607	1911	Mar 31 By Cash Dr	2625	911
	" " " "	118	326				911
			311				

Mut as per Rpt #2495

1911	June 30 To Voucher	117	105	1911	June 30 By F.B. Co. Dr	4213	158
	" " " "	117	58				108
			158				

New Car Cont'd. 1913-14

1913	June 30 To Cash	30	156	1914	July 29 To Cash	156	59453
	" "	38	73		Mar 31	11110	59204
	" "	101	32		Apr 29	11242	59273
	" "	126	59250		May 29	11870	59361
	" "	37	311		June 30	11838	59474
	" "	86	100		July 31	11805	59576
	" "	109	59589				59651
	" "	111	26				
	" "	51	791				
	" "	67	10				
	" "	86	76				
	" "	91	53802				
	" "	27	11805				
	" "	119	860				
	" "	135	57240				
	" "	36	47272				
	" "	76	810				
	" "	108	81646				
	" "	123	81877				
	" "	132	116158				
	" "		82669				

Nipthalene #2863

1912	June 31 To Voucher	128	1712	1912	June 31 By Cash Dr	1715
------	--------------------	-----	------	------	--------------------	------

Name
Address

C. E. Nestor Low

1912

Sept 30 To Voucher 117 120 Sept 30 By LHM Inv 6518 120

Necessary drawing for miniature belt pulleys

1912
Dec 31 To Voucher 102 562 Dec 31 By LHM Inv 6518 562

Necessary drawing for Michael Bird LHM #3281

1913
Mar 31 To Voucher 120 562
Apr 30 " " 140 562
1913
Mar 31 By C. E. Nestor Low 7225 562
Apr 30 " " " 7062 562Name
Address

Necessary drawing for making concrete pipe forms #3479

1912
Sept 30 To Voucher 74 109
1913
Sept 30 By LHM Inv 8043 1145

Necessary drawing for LHM

1913
Sept 31 Voucher 106 80
Jan 31 " 127 80
Mar 31 " 106 80
Apr 30 " 116 80
May 31 " 115 80
June 30 " 106 80
1913
Sept 31 LHM Inv 8043 80
Jan 31 " " 8077 80
Mar 31 " " 8786 80
Apr 30 " " 8839 80
May 31 " " 8952 80
June 30 " " 9030 80

Challans

Sheet No. _____

Name _____

Address _____

New Lay Out of Machinery Works Blank
18810

1875		1876		1877		1878		1879		1880	
July 28	Lumber	117	8250	July 28	Exp. Edin. Tenn. Co.	9237	8170				
Mar 31	"	73	3329	Mar 31	"	9526	6220				
"	"	192	2462	Apr 30	"	9924	1121				
"	"	173	53	Jul 31	"	1016	123				
"	"	130	11	Oct 31	"	10300	36634				
"	"	171	32033	Nov 30	"	10511	60248				
July 30	"	73	3761	Dec 31	"	10744	11848				
July 31	"	256	483	Jan 31	"	10862	15478				
Nov 30	"	148	36631								
Dec 31	"	114	46								
Jan 31	"	214	60203								
Feb 31	"	226	118846								
Mar 31	"	90	1700								
		146	48646								

H. B. Co. 51

Marling Tables of Make 2)

1875		1876		1877		1878		1879		1880	
Dec 31	Lumber	226	2084	Dec 31	Exp. Edin. Tenn. Co.	10227	2084				
Jan 31	"	20	1107	Jan 31	"	10177	15179				
"	"	39	192	Feb 29	"	10170	24016				
"	"	61	2260	Mar 31	"	11190	32033				
"	"	51	470								
"	"	177	370								
"	"	130	83								
"	"	148	11110								
"	"	3	1500								
"	"	29	46								
"	"	30	29								
"	"	53	906								
"	"	61	332								
"	"	112	16								
"	"	140	11								
"	"	126	47226								
"	"	153	15333								

Nitric Coke from Neutralizing Process

1875		1876		1877		1878		1879		1880	
Apr 30	Vanished	13	14406	Apr 29	Exp. Edin. Tenn. Co.	11402	50371				
"	"	58	1376	May 31	"	11402	117936				
"	"	52	31203	"	"		61300				
"	"	98	4186								
"	"	25	52231								
"	"	14	20104								
"	"	72	5377								
"	"	90	60								
"	"		163305								

Sheet No. _____

Name _____

Address _____

Machinery Drawings of Works Blotgi
P 4172

1875		1876		1877		1878		1879		1880	
May 31	Vanished	135	6354	May 31	Exp. Edin. Tenn. Co.	11202	6354				
June 30	"	108	2135	June 30	"	11202	2135				

熱帯地方の環境問題と自然保護

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Sheet No. 6

Name
Address

One Separator (by Bullentine)

#2699

1911	Oct 31	To Voucher	78	100	Oct 31	By Lt. M. J. J.	4939	8678
"	"	"	112	7633	Nov 30	"	5087	27154
"	"	"	115	7945	Dec 30	"	5224	25525
Nov 30	"	"	35	4634	Jan 31	"	5371	41267
"	"	"	37	434	Feb 29	"	5588	46428
"	"	"	88	474	Mar 30	"	5649	46614
"	"	"	113	35	Apr 30	"	5822	46624
"	"	"	117	15710	May 31	"	5960	46624
"	"	"	119	2517				46624
Dec 30	"	"	24	354				46624
"	"	"	25	90				46624
"	"	"	54	10				46624
"	"	"	115	850				46624
Jan 31	"	"	122	14717				46624
"	"	"	20	5315				46624
"	"	"	34	390				46624
"	"	"	42	172				46624
"	"	"	43	298				46624
"	"	"	100	2040				46624
"	"	"	105	1000				46624
"	"	"	110	2467				46624
"	"	"	132	25				46624
"	"	"	138	25050				46624
Feb 29	"	"	34	1934				46624
"	"	"	40	2790				46624
"	"	"	47	2821				46624
"	"	"	102	181				46624
"	"	"	119	248				46624
Mar 30	"	"	144	3955				46624
"	"	"	23	25				46624
"	"	"	39	47				46624
"	"	"	52	3188				46624
"	"	"	61	33604				46624
"	"	"	68	600				46624
"	"	"	80	1634				46624
"	"	"	92	380				46624
"	"	"	105	1410				46624
"	"	"	106	202				46624
"	"	"	126	1324				46624
"	"	"	127	21649				46624
Apr 30	"	" # 2525	238	774				46624
"	"	Voucher	81	4610				46624
"	"	"	38	6312				46624
"	"	"	43	15936				46624
"	"	"	45	84				46624
"	"	"	47	70				46624
"	"	"	67	20500				46624
"	"	"	80	32				46624
"	"	"	108	68				46624
"	"	"	122	3727				46624
"	"	"	128	75				46624
May 31	"	"	142	39329				46624
"	"	"	37	3714				46624
"	"	"	40	7099				46624
"	"	"	49	754				46624
"	"	"	140	362881				46624

Name
Address

Ore Separator (by Ballentine) 2699

1912	1912	1912	1912	1912	1912
June 29	20.5	70.2	June 29	61.8	306827
" "	4.2	76.4	July 31	62.4	319738
" "	6.5	1.00	Aug 31	63.95	325753
" "	12.1	4.41	Sept 30	65.35	331872
" "	14.5	19.07	Oct 31	66.78	337992
July 31	40.	16.79	Nov 30	67.78	344069
" "	41.	8.6	Dec 31	68.4	350222
" "	42.	70.2	Jan 31	70.18	356371
" "	70.	80	Feb 28	71.55	362528
" "	97	1.0			
Aug 31	14.4	16.1			
" "	23	12.5			
" "	88	17.46			
" "	101	2.40			
" "	123	30			
" "	129	143.76			
Sept 30	3.2	12.4			
" "	34	42.77			
" "	36	103.4			
" "	78	2.00			
Oct 31	121	113.18			
" "	34	19.70			
" "	37	11.33			
" "	91	6.60			
Nov 30	147	73.36			
" "	29	4.25			
" "	53	2.29			
" "	121	16.66			
Dec 31	110	173.00			
" "	18	11.82			
" "	106	11.1			
1913	155	393.22			
Jan 31	155	147.18			
Feb 28	35	5.22			
" "	110	75.36			
" "	115	20.76			
" "	110	2.9			
" "	116	28.80			
" "	124	120.72			
		3687.83			
July 28	132	125.36	Mar 31	75.24	23039
Mar 31	24	44.37	Apr 30	75.24	35678
" "	74	18.15	May 31	75.13	36263
" "	103	54.76			
" "	120	51.04			
Apr 30	129	55.28			
" "	140	26.18			
May 31	48	20.3			
" "	74	16.10			
" "	96	2.5			
" "	150	25			
" "	183	73.80			

Name
Address

Ore Separator (by Ballentine) 12699

1912	1912	1912	1912	1912	1912
June 30	14	70.23	June 30	71.16	20858
" "	67	16.18	July 31	71.16	29720
" "	80	6.78	Aug 31	72.1	13514
" "	120	139.46	Sept 30	80.18	17855
July 31	33	28.81			
" "	40	16.170			
Aug 30	129	107.19			
" "	77	1.00			
Sept 30	116	133.19			
" "	30	13			
" "	129	12.42			

Address

AF

Name

J. F. Ott

Lm

1914		1915		1916		1917		1918	
June 29	To Voucher	145	126	June 30	By LHM Bond	6124			126
July 31	" "	155	15	July 31	" "	1225			15
Aug 31	" "	18	126	Aug 31	" "	7125			126
			353						353
June 30	To Cash	175	262	June 30	By LHM Bond	7704			262
July 31	" "	161	15	July 31	" "	7500			15
Sept 30	" "	179	5730	Sept 30	" "	8061			5730
Oct 31	" "	189	173	Oct 31	" "	8168			173
Nov 30	" "	178	7021	Nov 30	" "	8216			7021
Dec 31	" "	156	1711	Dec 31	" "	8278			1711
Jan 31	" "	127	1850	Jan 31	" "	8323			1850
Feb 30	" "	116	180	Feb 31	" "	8336			180
Mar 31	" "	97	1912	Mar 31	" "	8336			1912
	" "	102	65	Apr 31	" "	8457			65
	" "	115	95	May 31	" "	8457			95
Aug 30		90	11	June 30	" "	8457			11
Oct 31		110	10	July 31	" "	8457			10
Nov 31		138	110	Aug 31	" "	8457			110
Dec 31		147	105	Sept 30	" "	8457			105
Jan 30		250	768	Oct 31	" "	8457			768
Feb 31		293	3733	Nov 31	" "	8457			3733
Mar 30		257	53	Dec 31	" "	8457			53
Apr 31		256	176	Jan 31	" "	8457			176
May 30		200	261	Feb 31	" "	8457			261
Jun 31		37	143	Mar 31	" "	8457			143
Jul 31		326	143	Apr 30	" "	8457			143
Aug 31		119	119	May 31	" "	8457			119
Sept 31		151	333	June 31	" "	8457			333
Oct 31		108	26	July 31	" "	8457			26
Nov 31		120	375	Aug 31	" "	8457			375

Name
Address

Sheet No. _____

Name

Address

Operating & Mfg. Expense Statement - Guilford Co. 1904

1912		1913		1914	
Jan. 31					
Feb. 28	25.00	Feb. 29	26.00	Mar. 31	112.50
"	30.00	"	31.00	"	112.50
"	35.00	"	36.00	"	112.50
"	40.00	"	41.00	"	112.50
"	45.00	"	46.00	"	112.50
"	50.00	"	51.00	"	112.50
"	55.00	"	56.00	"	112.50
"	60.00	"	61.00	"	112.50
"	65.00	"	66.00	"	112.50
"	70.00	"	71.00	"	112.50
"	75.00	"	76.00	"	112.50
"	80.00	"	81.00	"	112.50
"	85.00	"	86.00	"	112.50
"	90.00	"	91.00	"	112.50
"	95.00	"	96.00	"	112.50
"	100.00	"	101.00	"	112.50
"	105.00	"	106.00	"	112.50
"	110.00	"	111.00	"	112.50
"	115.00	"	116.00	"	112.50
"	120.00	"	121.00	"	112.50
"	125.00	"	126.00	"	112.50
"	130.00	"	131.00	"	112.50
"	135.00	"	136.00	"	112.50
"	140.00	"	141.00	"	112.50
"	145.00	"	146.00	"	112.50
"	150.00	"	151.00	"	112.50
"	155.00	"	156.00	"	112.50
"	160.00	"	161.00	"	112.50
"	165.00	"	166.00	"	112.50
"	170.00	"	171.00	"	112.50
"	175.00	"	176.00	"	112.50
"	180.00	"	181.00	"	112.50
"	185.00	"	186.00	"	112.50
"	190.00	"	191.00	"	112.50
"	195.00	"	196.00	"	112.50
"	200.00	"	201.00	"	112.50
"	205.00	"	206.00	"	112.50
"	210.00	"	211.00	"	112.50
"	215.00	"	216.00	"	112.50
"	220.00	"	221.00	"	112.50
"	225.00	"	226.00	"	112.50
"	230.00	"	231.00	"	112.50
"	235.00	"	236.00	"	112.50
"	240.00	"	241.00	"	112.50
"	245.00	"	246.00	"	112.50
"	250.00	"	251.00	"	112.50
"	255.00	"	256.00	"	112.50
"	260.00	"	261.00	"	112.50
"	265.00	"	266.00	"	112.50
"	270.00	"	271.00	"	112.50
"	275.00	"	276.00	"	112.50
"	280.00	"	281.00	"	112.50
"	285.00	"	286.00	"	112.50
"	290.00	"	291.00	"	112.50
"	295.00	"	296.00	"	112.50
"	300.00	"	301.00	"	112.50
"	305.00	"	306.00	"	112.50
"	310.00	"	311.00	"	112.50
"	315.00	"	316.00	"	112.50
"	320.00	"	321.00	"	112.50
"	325.00	"	326.00	"	112.50
"	330.00	"	331.00	"	112.50
"	335.00	"	336.00	"	112.50
"	340.00	"	341.00	"	112.50
"	345.00	"	346.00	"	112.50
"	350.00	"	351.00	"	

Address

Address *

Operating Mfg. Expense Items

1994

Year	Month	Day	Time	Location	Time	Location	Time	Location
1921	Jan	31	11:15					
1922	Jan	29	3:20	3000	3:20	3000	3:20	3000
			4:10	3000	4:10	3000	4:10	3000
			5:10	3000	5:10	3000	5:10	3000
			6:10	3000	6:10	3000	6:10	3000
			7:10	3000	7:10	3000	7:10	3000
			8:10	3000	8:10	3000	8:10	3000
			9:10	3000	9:10	3000	9:10	3000
			10:10	3000	10:10	3000	10:10	3000
			11:10	3000	11:10	3000	11:10	3000
			12:10	3000	12:10	3000	12:10	3000
			1:10	3000	1:10	3000	1:10	3000
			2:10	3000	2:10	3000	2:10	3000
			3:10	3000	3:10	3000	3:10	3000
			4:10	3000	4:10	3000	4:10	3000
			5:10	3000	5:10	3000	5:10	3000
			6:10	3000	6:10	3000	6:10	3000
			7:10	3000	7:10	3000	7:10	3000
			8:10	3000	8:10	3000	8:10	3000
			9:10	3000	9:10	3000	9:10	3000
			10:10	3000	10:10	3000	10:10	3000
			11:10	3000	11:10	3000	11:10	3000
			12:10	3000	12:10	3000	12:10	3000
			1:10	3000	1:10	3000	1:10	3000
			2:10	3000	2:10	3000	2:10	3000
			3:10	3000	3:10	3000	3:10	3000
			4:10	3000	4:10	3000	4:10	3000
			5:10	3000	5:10	3000	5:10	3000
			6:10	3000	6:10	3000	6:10	3000
			7:10	3000	7:10	3000	7:10	3000
			8:10	3000	8:10	3000	8:10	3000
			9:10	3000	9:10	3000	9:10	3000
			10:10	3000	10:10	3000	10:10	3000
			11:10	3000	11:10	3000	11:10	3000
			12:10	3000	12:10	3000	12:10	3000
			1:10	3000	1:10	3000	1:10	3000
			2:10	3000	2:10	3000	2:10	3000
			3:10	3000	3:10	3000	3:10	3000
			4:10	3000	4:10	3000	4:10	3000
			5:10	3000	5:10	3000	5:10	3000
			6:10	3000	6:10	3000	6:10	3000
			7:10	3000	7:10	3000	7:10	3000
			8:10	3000	8:10	3000	8:10	3000
			9:10	3000	9:10	3000	9:10	3000
			10:10	3000	10:10	3000	10:10	3000
			11:10	3000	11:10	3000	11:10	3000
			12:10	3000	12:10	3000	12:10	3000
			1:10	3000	1:10	3000	1:10	3000
			2:10	3000	2:			

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

L. Oude Jr.

1911

Apr 30. Touchard Rd

1911

26 Apr 29. L. & H. Rd. 11.500

26

023

Sheet No. _____

Name _____

Address _____

Sheet No. 50.

Name _____

Address _____

J. F. Ott Labor & Material for

1908

Mar 31 To Voucher	71.
Apr 30 " "	86.
May 31 " "	80.
June 30 " "	77.
July 31 " "	77.
Aug 31 " "	77.
Sept 30 " "	96.
Oct 31 " "	104.
Nov 30 " "	90.
Dec 31 " "	99.
1909 Jan 31 " "	109.
Feb 27 " "	77.
Mar 31 " "	91.
Apr 30 " "	104.
May 31 " "	111.
June 30 " "	84.
July 31 " "	108.
Aug 31 " "	108.
Sept 30 " "	113.
Oct 31 " "	104.
Nov 30 " "	112.
Dec 31 " "	133.
1910 Jan 31 " "	115.
Feb 28 " "	90.

1908

Mar 31 By L.M. Service	61.
Apr 30 " " "	122.
May 31 " " "	176.
June 30 " " "	262.
July 31 " " "	334.
Aug 31 " " "	318.
Sept 30 " " "	461.
Oct 31 " " "	556.
Nov 30 " " "	579.
Dec 31 " " "	671.
1909 Jan 30 " " "	777.
Feb 27 " " "	861.
Mar 31 " " "	918.
Apr 30 " " "	1013.
May 31 " " "	1085.
June 30 " " "	1165.
July 31 " " "	1253.
Aug 31 " " "	1343.
Sept 30 " " "	1415.
Oct 30 " " "	1491.
Nov 30 " " "	1572.
Dec 31 " " "	1679.
1910 Jan 31 " " "	1764.
Feb 28 " " "	1842.

871.9

J. P. Ott Labor & Material for

1908

Mar 31 To Voucher	71.
June 30 " "	77.
" " " "	77.
July 31 " "	23.
" " " "	80.
Nov 30 " "	90.
Dec 31 " "	99.
1909 Jan 31 " "	109.
Apr 30 " "	104.
May 31 " "	111.
Aug 31 " "	108.
Nov 31 " "	119.
Dec 30 " "	129.
1910 Jan 31 " "	130.
Nov 30 " "	117.
" " " "	119.
Dec 30 " "	111.
Feb 27 " "	144.
June 29 " "	50.
" " " "	141.
Apr 30 " "	121.
Nov 30 " "	21.
Dec 31 " "	33.
" " " "	137.

1908

Mar 31 By L.M. Service	65.
June 30 " " "	263.
July 31 " " "	335.
Nov 30 " " "	580.
Dec 31 " " "	670.
1909 Jan 30 " " "	776.
Apr 30 " " "	1004.
May 31 " " "	1086.
Nov 30 " " "	1344.
Dec 31 " " "	1463.
1910 Jan 30 " " "	1580.
Feb 28 " " "	1677.
Apr 30 " " "	1767.
May 30 " " "	1842.
Dec 31 " " "	1921.

871.9

1910

Mar 31 To Voucher 27

1910

Mar 31 By L.M. Service 7300

871.9

J. F. Oth Labor & Maternal fms

1887				1888			
Mar 31 To Voucher				Mar 31 By Lm. Invs			
103			7.20	1945			7.20
118			6.60	1888			6.60
93			3.78	28.20			28.20
96			2.40	24.81			24.81
21			1.78	3.56			3.56
39			72	37.56			37.56
110			25	39.33			39.33
124			70.8	41.55			41.55
109			3.22	4.37			4.37
116			3.79	45.80			45.80
114			34.80	46.61			46.61
112			5.00	57.06			57.06
75			7.15	58.23			58.23
117			2.79	58.24			58.24
115			5.12	58.67			58.67
118			1.15	58.67			58.67
111			9.14	58.67			58.67
112			6.15				
119			10.53				
120			2.25				
119			1.40				
128			3.00				
114			1.33				
127			1.27				
126			2.62				
122			1.20				
			13.79				

137.90
Louis eth Labor & Material from

1710			1710		
June 31 To Voucher	119	650	May 31 By L. M. Long	2164	650
June 30 " "	80	585	June 30 " "	2223	585
July 31 " "	95	585	July 31 " "	2268	727
Aug. 31 " "	100	650	Aug. 31 " "	22nd	650
Sept. 30 " "	96	684	Sept. 30 " "	2683	684
Dec. 31 " "	116	421	Dec. 31 " "	3159	421
Jan. 31 " "	94	27	Jan. 31 " "	3282	27
Feb. 28 " "	129	167	Feb. 28 " "	6116	167
March 31 " "	217	35	March 31 " "	1167	35
1711		11914	1711		11914
Nov. 30. Cash	109	36	Nov. 30. L. M. Long	9457	36
Dec. 31 " "	110	120	Dec. 31 " "	40	40
May 31 " "	125	90	May 31 " "	11640	90

Sheet No. _____

Name
Address

One Each Pattern #2498²-2499² #3273

1913		1913	
Mar 31. November 120.	1140	Mar 31. By ESO Co. In gross.	1160

One Mood Pattern *4225*

1915		1915	
Mar 31 To Kinder 120	1237	Mar 31 By B'nai B'rith 120	1237

Sheet No. _____

Name _____

Address _____

One Field Park Town #2246

1913 Mar 31 To Lumber 120	282	1913 Mar 31 By S.S.B. on Inv 799	282
------------------------------	-----	-------------------------------------	-----

1913 Mar 31 To Lumber 120	1140	1913 Mar 31 By S.S.B. on Inv 725	11704
------------------------------	------	-------------------------------------	-------

One Sand Pattern 12017418 #2288

1913 Mar 31 To Lumber 120	3783	1913 Mar 31 By S.S.B. on Inv 725	37834
------------------------------	------	-------------------------------------	-------

Sheet No. _____

Name _____

Address _____

One Rough Pattern

#3295

1913 Mar 31 To Lumber 120	195	1913 Mar 31 By S.S.B. on Inv 725	1951
------------------------------	-----	-------------------------------------	------

One Rough Pattern #3296

1913 Mar 31 To Lumber 120	201	1913 Mar 31 By S.S.B. on Inv 725	2011
------------------------------	-----	-------------------------------------	------

Sheet No. _____

Name _____

Address _____

One Each Tattler

3328

¹⁹⁷³ Apr 30 To Lander 110.	¹⁹⁷³ 388 Apr 30 By C.B. Ben Im 7562 388
--	---

One Hundred Times Cont.

13229

¹⁹⁷³ Apr 30 To Lander 110. May 31 " " 52	¹⁹⁷³ 102 Apr 30 By J.B. Ben Im 7410. 631 May 31 " " Ben Im 7532 102 631
---	---

Sheet No. _____

Name _____

Address _____

One Rough Nall Bop.

3343

¹⁹⁷³ Apr 30 To Lander 110.	¹⁹⁷³ 111 Apr 30 By C.B. Ben Im 7563 111
--	---

One Rough Tattler

13247

¹⁹⁷³ Apr 30 To Lander 110.	¹⁹⁷³ 378 Apr 30 By C.B. Ben Im 7563 378
--	---

Sheet No. _____

Name
AddressOffice Employment Service Ltd.
16071916
Pay from 1915 to 1916

Jan 31. Lumber	145	145	Jan 31. Lumber	105.75	105.75
"	43	145	Mar 29	"	109.25
"	35	50	July	"	109.25
145	145	635.75	Mar 31	"	110.25
21.4.29	31	356	"	"	110.25
"	32	580	Apr 29	"	112.25
"	33	950	May 31	"	112.25
"	37	515	July 31	"	112.25
"	146	1537.50			
Mar 31	118	1537.50			
Apr 30	31	1537.50			
"	93	56			
May 31	145	1537.50			
July 31	123	1537.50			

- 4 Coven 8.75

1916			1916		
Jan 31. Lumber	145	145	Jan 31. L.M. L.	110.25	110.25
Mar 31	119	1537.50	Mar 31	"	110.25
Apr 30	44	1537.50	Apr 29	"	112.25

Sheet No. _____

Name
AddressOperating, Mfg. Expense, Stone, Woodward
160.251916
Pay from 1915 to 1916

July 31. Voucher	69	380	July 31. E. Day (M. Day) 11.60	11.60
"	95	1.57		
"	123	1.00		
"	132	1.20		

Operating, Mfg. Expense, Stone, Woodward
160.25

July 31. Voucher	95	11.60	July 31. E. Day (M. Day) 11.60	11.60
"	123	1.00		
"	131	6.75		
"	132	1.20		

Sheet No. _____

Name _____
Address _____*One Gallon for Face Spindle*
11-73

1911	July 31 Voucher	132	750	July 31 1912	11731	750
------	-----------------	-----	-----	--------------	-------	-----

One Penny Bored Out

1911	July 31 Voucher	132	863	July 31 1912	11732	263
------	-----------------	-----	-----	--------------	-------	-----

Sheet No. _____

Name _____
Address _____*One Apparatus for Dyeing Powder Blue*
11-74

1911	July 31 Voucher	132	11516	July 31 1912	11735	11516
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One Hundred Shaders

1911	July 31 Voucher	132	11733	July 31 1912	11743	11733
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Sheet No. _____

Name
AddressOne Standard Brand Shampoo
211-294

1876 July 31 Voucher 132	1157	July 31	McC. the laundry 24, 25, 11736	1157
-----------------------------	------	---------	--------------------------------	------

One Insurance Co. Bulletin Board

1876 July 31 Voucher 132	1157	July 31	E. H. H. 7000	11737	36
-----------------------------	------	---------	---------------	-------	----

Sheet No. _____

Name
AddressOne 8 1/2 x 11" Standard Frame
#1334

1876 July 31 Voucher 132	12	July 31	E. H. H. 5, 5012	11738	18
-----------------------------	----	---------	------------------	-------	----

Sheet No. 103

Name
Address

One Each Pattern #3113

1912 Oct 31 To Bank 1149	73.02	1912 Oct 31 By L. M. Linn 1147	73.02
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Albert Oliver L.M.

1912 Oct 31 To Bank 1149	12	1912 Oct 31 By L.M. Linn 1142	16
-----------------------------	----	----------------------------------	----

Geo. L. Oth L.M.

1912 Nov 30 To Bank 150	17	1912 Nov 30 By L.M. Linn 1420	17
Dec 30 To Bank 175	72	Dec 30 L.M. Linn 7700	72

Sheet No. _____

Name
Address

J. P. Oth

1912 July 31 To Bank 75	75	1912 July 31 By L.M. Linn 7509	75
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One Ring & Pattern #3556

1912 Nov 30 To Bank 1145	23.1	1912 Nov 30 By E.S.B. Linn 8228	23.1
-----------------------------	------	------------------------------------	------

One Each Pattern #247-77-78 #2558

1912 Nov 30 To Bank 156	30.75	1912 Nov 30 By E.S.B. Linn 8229	30.75
Dec 31 " 156	255	Dec 31 " 8312	255

Sheet No. _____

Name
AddressOne Rong & Patten
#3559

1912

Nov 30 To Lumber 141 1430 Nov 30 By E.S.B. Co. Dr 8227 1430

1913

Dec 31 Lumber 156 316 Dec 31 E.S.B. Co. Dr 8351 316

1914

Jan 31 Lumber 157 132 Jan 31 E.S.B. Co. Dr 8427 132

1914

Jan 31 Lumber 157 One Rong & Patten #3594
132 Jan 31 E.S.B. Co. Dr 8427 132

Sheet No. _____

Name
AddressOne Rong & Patten
#3621

1912

Feb 28 Lumber 131 139 Feb 28 E.S.B. Co. Dr 8227 139

1914

Feb 28 Lumber 132 262 Feb 28 E.S.B. Co. Dr 8351 262

1914

Mar 31 Lumber 156 1473 Mar 31 By E.S.B. Co. Dr 8427 1473

Sheet No. _____

Name
Address

One Punch & Lie for Curing & Blanking Old Terminal
13728

1907		1907		1907	
Sept 30	Transfer	21	160	Sept 30	Edmund Gordon 9307
2	"	95	8412		8572

One Hot Boy _{page # 9731}

ONE MONTH						Total 3731	
Sept 30.	Lumber	91		15	Sept 30.	Economical Lumber	7308
	"	99	27615		Oct 31.	"	9107
Oct 31.	"	15	158				27690
	"	11	2175				2313

One Hot Box + 2 Cold Box for 9-11 by 11/16

Sept		Oct		Nov		Dec	
Sept 30	London	91	06 Sept 30	Edwards	9209		8951
"	"	90	88 Sept 31	"	910		1777
"	"	44	903	Nov 30	9427		678
Oct 31	"	41	1556	Dec 31	9609		150
"	"	115	15790				
"	"	105	37				
Nov 30	"	108	08				
"	"	109	6537				
Dec 31	"	152	158				

Sheet No.

Name _____
Address _____

One Thermostat Complete 13733

Address		1897		1898		1899	
Sept. 30	Unwedder	90	1897	Sept. 30	Edward L. L. L. L. L.	9317	1897
Oct. 31	"	91	18	Oct. 31	"	9418	18

One Lie for Purchasing Negative Shipping Book 13762

<u>Cash</u>						<u>Debit for Purchasing Negative Shipping Dept.</u>					
1914			1915			1916			1917		
Oct 31	Voucher	115	01	Oct 31	E B B Cash	94.8	01				
Nov 30	"	21	1090	Nov 30	" "	grov.	63	13			
	"	109	5223								

Cinellie for drawing Negative Shipping Boat

1914		1915		1916		1917	
Oct 31	Lumber	110.	105.10	Oct 31	E. S. B. Co. Inc	94.19	105.10
Nov 30	"	109.	91.27	Nov 30	" "	95.03	91.27

Sheet No. _____

Name
AddressOne Sixty Blanking Outside of Box
13765

1911			1911			1911		
Oct 31	Lumber	115	2322	Oct 31	E. S. B. Co. Lumber	9510	2322	
Nov 30	"	109	2415	Nov 30	"	9511	2415	
Dec 31	"	152	2415	Dec 31	"	9515	2415	

1911			One Sixty Blanking Outside of Box 13766				
Oct 31	Lumber	115	2415	Oct 31	E. S. B. Co. Lumber	9511	2415
Nov 30	"	108	2415	Nov 30	"	9515	2415
Dec 31	"	109	2415	Dec 31	"	9519	2415
Dec 31	"	152	2415				

1911			One Rony & Taffoni			1911			1911		
13767											
Oct 31	Lumber	115	110	Oct 31	E. S. B. Co. Lumber	9513	110				

Sheet No. _____

Name
AddressOne Sixty Blanking Outside of Box
13769

1911			1911			1911		
Oct 31	Lumber	109	2322	Oct 31	E. S. B. Co. Lumber	9518	2322	
Nov 30	"	109	2415	Nov 30	"	9518	2415	
Dec 31	"	152	2415	Dec 31	"	9518	2415	

1911		1911		1911			
One Hot Test Table #3771							
Nov 30	Lumber	109	7013	Nov 30	E. S. B. Co. Lumber	9516	7013
July 28	"	116	9516	July 28	"	9777	9516

1911			1911			1911		
One Rough Blanking								
13772								
Nov 30	Lumber	109	1880	Nov 30	S. S. B. Co. Lumber	9517	1880	
					</			

Sheet No.

Name
Address

One Pattern 13914

[illegible]

Operating & Mfg. Expense Stamps, ¹⁹¹⁵ _{21/24} Analyzed.

Dec 31	12	37 21	24.5	31	18 Elmwood Dr	10758	369 24
	49	1039	15	Jan 31	"	10850	758 26
	96	758					
	117	20000					
	260	500					
	216	119					
	217	916					
	246	511					
1916 Jan 31	21	1024					
	39	511					
	43	162					
	47	513					
	53	1000					
	60	1010					
	85	1065					
	121	1070					
	185	1070					

Operating & Mfg. Expense Stmt. 4043 Phenol Div.

Dec 31	Konchen	17	3/25	Dec 31	RE & Phant Deer	10/60	17254
		49	2030	Jan 31	"	10838	21252
		63	507				
		700	203				
		716	1484				
		717	1587				
		226	616				
		1	549				
		39	202				
		43	5230				
		47	108				
		51	1200				
		81	216				
		88	216				
		100	216				
		148	524				

Name _____
Address _____

One Pattern as Per #4

[illegible]

One Pattern 1842 4207

[illegible]

One Clamp Guard #14211

[illegible]

Address

One Pattern

142-14

THE GREAT PEAKS COUNTRY SERVICE									
1976									
June 30	Vanessa	108	1120	June	30	6644.0 E 213 E	1157h	420	

One Pattern 1852

8/12/19

June 30	Voucher	108	1773	June 30	Ch. Wm. E. D. B. C.	11475	1773
---------	---------	-----	------	---------	---------------------	-------	------

Orig. Pattern #4228

#4228

1916 June 30 Voucher 108 503 June 30 M. E. Inc. Bureau, Ariz. 11481 502

[illegible]

[illegible]

Sheet No. 13

Name
Address

Photographic Work "Green & Powers"
2149

2148

1912		1911		1910		1909		1908		1907		1906		1905		1904		1903		1902		1901		1900																																																																																																																																																																																																																																																																																																																																																																														
June 27	Boston	110	116.5	117	117.5	118	118.5	119	119.5	120	120.5	121	121.5	122	122.5	123	123.5	124	124.5	125	125.5	126	126.5	127	127.5	128	128.5	129	129.5	130	130.5	131	131.5	132	132.5	133	133.5	134	134.5	135	135.5	136	136.5	137	137.5	138	138.5	139	139.5	140	140.5	141	141.5	142	142.5	143	143.5	144	144.5	145	145.5	146	146.5	147	147.5	148	148.5	149	149.5	150	150.5	151	151.5	152	152.5	153	153.5	154	154.5	155	155.5	156	156.5	157	157.5	158	158.5	159	159.5	160	160.5	161	161.5	162	162.5	163	163.5	164	164.5	165	165.5	166	166.5	167	167.5	168	168.5	169	169.5	170	170.5	171	171.5	172	172.5	173	173.5	174	174.5	175	175.5	176	176.5	177	177.5	178	178.5	179	179.5	180	180.5	181	181.5	182	182.5	183	183.5	184	184.5	185	185.5	186	186.5	187	187.5	188	188.5	189	189.5	190	190.5	191	191.5	192	192.5	193	193.5	194	194.5	195	195.5	196	196.5	197	197.5	198	198.5	199	199.5	200	200.5	201	201.5	202	202.5	203	203.5	204	204.5	205	205.5	206	206.5	207	207.5	208	208.5	209	209.5	210	210.5	211	211.5	212	212.5	213	213.5	214	214.5	215	215.5	216	216.5	217	217.5	218	218.5	219	219.5	220	220.5	221	221.5	222	222.5	223	223.5	224	224.5	225	225.5	226	226.5	227	227.5	228	228.5	229	229.5	230	230.5	231	231.5	232	232.5	233	233.5	234	234.5	235	235.5	236	236.5	237	237.5	238	238.5	239	239.5	240	240.5	241	241.5	242	242.5	243	243.5	244	244.5	245	245.5	246	246.5	247	247.5	248	248.5	249	249.5	250	250.5	251	251.5	252	252.5	253	253.5	254	254.5	255	255.5	256	256.5	257	257.5	258	258.5	259	259.5	260	260.5	261	261.5	262	262.5	263	263.5	264	264.5	265	265.5	266	266.5	267	267.5	268	268.5	269	269.5	270	270.5	271	271.5	272	272.5	273	273.5	274	274.5	275	275.5	276	276.5	277	277.5	278	278.5	279	279.5	280	280.5	281	281.5	282	282.5	283	283.5	284	284.5	285	285.5	286	286.5	287	287.5	288	288.5	289	289.5	290	290.5	291	291.5	292	292.5	293	293.5	294	294.5	295	295.5	296	296.5	297	297.5	298	298.5	299	299.5	300	300.5	301	301.5	302	302.5	303	303.5	304	304.5	305	305.5	306	306.5	307	307.5	308	308.5	309	309.5	31

Sheet No.

Name _____

Address

Photographic Work Green's Powers.
12149

f2149

1894	Dec	31	Best Forward 20 December	1127	11330553	Dec 31	Best Forward 20 December	666	1153701
	"	"	"	150	700	Dec 31	"	"	75736
	"	"	"	152	1187291	Dec 31	"	"	114668
	"	"	"	154	1187291	Dec 31	"	"	114668
	"	"	"	156	1187291	Dec 31	"	"	114668
	"	"	"	158	1187291	Dec 31	"	"	114668
	"	"	"	159	1187291	Dec 31	"	"	114668
	"	"	"	163	1187291	Dec 31	"	"	114668
	"	"	"	164	1187291	Dec 31	"	"	114668
	"	"	"	169	1187291	Dec 31	"	"	114668
	"	"	"	171	1187291	Dec 31	"	"	114668
	"	"	"	175	1187291	Dec 31	"	"	114668
	"	"	"	179	1187291	Dec 31	"	"	114668
	"	"	"	183	1187291	Dec 31	"	"	114668
	"	"	"	187	1187291	Dec 31	"	"	114668
	"	"	"	191	1187291	Dec 31	"	"	114668
	"	"	"	195	1187291	Dec 31	"	"	114668
	"	"	"	199	1187291	Dec 31	"	"	114668
	"	"	"	203	1187291	Dec 31	"	"	114668
	"	"	"	207	1187291	Dec 31	"	"	114668
	"	"	"	211	1187291	Dec 31	"	"	114668
	"	"	"	215	1187291	Dec 31	"	"	114668
	"	"	"	219	1187291	Dec 31	"	"	114668
	"	"	"	223	1187291	Dec 31	"	"	114668
	"	"	"	227	1187291	Dec 31	"	"	114668
	"	"	"	231	1187291	Dec 31	"	"	114668
	"	"	"	235	1187291	Dec 31	"	"	114668
	"	"	"	239	1187291	Dec 31	"	"	114668
	"	"	"	243	1187291	Dec 31	"	"	114668
	"	"	"	247	1187291	Dec 31	"	"	114668
	"	"	"	251	1187291	Dec 31	"	"	114668
	"	"	"	255	1187291	Dec 31	"	"	114668
	"	"	"	259	1187291	Dec 31	"	"	114668
	"	"	"	263	1187291	Dec 31	"	"	114668
	"	"	"	267	1187291	Dec 31	"	"	114668
	"	"	"	271	1187291	Dec 31	"	"	114668
	"	"	"	275	1187291	Dec 31	"	"	114668
	"	"	"	279	1187291	Dec 31	"	"	114668
	"	"	"	283	1187291	Dec 31	"	"	114668
	"	"	"	287	1187291	Dec 31	"	"	114668
	"	"	"	291	1187291	Dec 31	"	"	114668
	"	"	"	295	1187291	Dec 31	"	"	114668
	"	"	"	299	1187291	Dec 31	"	"	114668
	"	"	"	303	1187291	Dec 31	"	"	114668
	"	"	"	307	1187291	Dec 31	"	"	114668
	"	"	"	311	1187291	Dec 31	"	"	114668
	"	"	"	315	1187291	Dec 31	"	"	114668
	"								

Sheet No. _____

Name _____

Address

Photographic Work

42148

[illegible]

Name _____
Address _____

Photographic Work.

#2149

Name _____
Address _____

Photographic Work by Thompson

* ~~3022~~ - #3022

[illegible][illegible]

Sheet No. _____

Name _____
Address _____

Sheet No. _____

Name _____
Address _____Photos of Motion Picture Play *1913*

1912		1913		1914		1915		1916	
Jan 31	107	191.55	Jan 31	107.55	Jan 31	107.55	Jan 31	107.55	107.55
Feb 28	108	108.00	Feb 28	108.00	Feb 28	108.00	Feb 28	108.00	108.00
Mar 31	109	109.00	Mar 31	109.00	Mar 31	109.00	Mar 31	109.00	109.00
Apr 30	110	110.00	Apr 30	110.00	Apr 30	110.00	Apr 30	110.00	110.00
May 31	111	111.00	May 31	111.00	May 31	111.00	May 31	111.00	111.00
June 30	112	112.00	June 30	112.00	June 30	112.00	June 30	112.00	112.00
July 31	113	113.00	July 31	113.00	July 31	113.00	July 31	113.00	113.00
Aug 31	114	114.00	Aug 31	114.00	Aug 31	114.00	Aug 31	114.00	114.00
Sept 30	115	115.00	Sept 30	115.00	Sept 30	115.00	Sept 30	115.00	115.00
Oct 31	116	116.00	Oct 31	116.00	Oct 31	116.00	Oct 31	116.00	116.00
Nov 30	117	117.00	Nov 30	117.00	Nov 30	117.00	Nov 30	117.00	117.00
Dec 31	118	118.00	Dec 31	118.00	Dec 31	118.00	Dec 31	118.00	118.00
To Annual Expense		118.00	To Annual Expense		118.00	To Annual Expense		118.00	118.00
Jan 31	119	119.00	Jan 31	119.00	Jan 31	119.00	Jan 31	119.00	119.00
Feb 28	120	120.00	Feb 28	120.00	Feb 28	120.00	Feb 28	120.00	120.00
Mar 31	121	121.00	Mar 31	121.00	Mar 31	121.00	Mar 31	121.00	121.00
Apr 30	122	122.00	Apr 30	122.00	Apr 30	122.00	Apr 30	122.00	122.00
May 31	123	123.00	May 31	123.00	May 31	123.00	May 31	123.00	123.00
June 30	124	124.00	June 30	124.00	June 30	124.00	June 30	124.00	124.00
July 31	125	125.00	July 31	125.00	July 31	125.00	July 31	125.00	125.00
Aug 31	126	126.00	Aug 31	126.00	Aug 31	126.00	Aug 31	126.00	126.00
Sept 30	127	127.00	Sept 30	127.00	Sept 30	127.00	Sept 30	127.00	127.00
Oct 31	128	128.00	Oct 31	128.00	Oct 31	128.00	Oct 31	128.00	128.00
Nov 30	129	129.00	Nov 30	129.00	Nov 30	129.00	Nov 30	129.00	129.00
Dec 31	130	130.00	Dec 31	130.00	Dec 31	130.00	Dec 31	130.00	130.00
To Annual Expense		130.00	To Annual Expense		130.00	To Annual Expense		130.00	130.00
Jan 31	131	131.00	Jan 31	131.00	Jan 31	131.00	Jan 31	131.00	131.00
Feb 28	132	132.00	Feb 28	132.00	Feb 28	132.00	Feb 28	132.00	132.00
Mar 31	133	133.00	Mar 31	133.00	Mar 31	133.00	Mar 31	133.00	133.00
Apr 30	134	134.00	Apr 30	134.00	Apr 30	134.00	Apr 30	134.00	134.00
May 31	135	135.00	May 31	135.00	May 31	135.00	May 31	135.00	135.00
June 30	136	136.00	June 30	136.00	June 30	136.00	June 30	136.00	136.00
July 31	137	137.00	July 31	137.00	July 31	137.00	July 31	137.00	137.00
Aug 31	138	138.00	Aug 31	138.00	Aug 31	138.00	Aug 31	138.00	138.00
Sept 30	139	139.00	Sept 30	139.00	Sept 30	139.00	Sept 30	139.00	139.00
Oct 31	140	140.00	Oct 31	140.00	Oct 31	140.00	Oct 31	140.00	140.00
Nov 30	141	141.00	Nov 30	141.00	Nov 30	141.00	Nov 30	141.00	141.00
Dec 31	142	142.00	Dec 31	142.00	Dec 31	142.00	Dec 31	142.00	142.00
To Annual Expense		142.00	To Annual Expense		142.00	To Annual Expense		142.00	142.00
Jan 31	143	143.00	Jan 31	143.00	Jan 31	143.00	Jan 31	143.00	143.00
Feb 28	144	144.00	Feb 28	144.00	Feb 28	144.00	Feb 28	144.00	144.00
Mar 31	145	145.00	Mar 31	145.00	Mar 31	145.00	Mar 31	145.00	145.00
Apr 30	146	146.00	Apr 30	146.00	Apr 30	146.00	Apr 30	146.00	146.00
May 31	147	147.00	May 31	147.00	May 31	147.00	May 31	147.00	147.00
June 30	148	148.00	June 30	148.00	June 30	148.00	June 30	148.00	148.00
July 31	149	149.00	July 31	149.00	July 31	149.00	July 31	149.00	149.00
Aug 31	150	150.00	Aug 31	150.00	Aug 31	150.00	Aug 31	150.00	150.00
Sept 30	151	151.00	Sept 30	151.00	Sept 30	151.00	Sept 30	151.00	151.00
Oct 31	152	152.00	Oct 31	152.00	Oct 31	152.00	Oct 31	152.00	152.00
Nov 30	153	153.00	Nov 30	153.00	Nov 30	153.00	Nov 30	153.00	153.00
Dec 31	154	154.00	Dec 31	154.00	Dec 31	154.00	Dec 31	154.00	154.00
To Annual Expense		154.00	To Annual Expense		154.00	To Annual Expense		154.00	154.00
Jan 31	155	155.00	Jan 31	155.00	Jan 31	155.00	Jan 31	155.00	155.00
Feb 28	156	156.00	Feb 28	156.00	Feb 28	156.00	Feb 28	156.00	156.00
Mar 31	157	157.00	Mar 31	157.00	Mar 31	157.00	Mar 31	157.00	157.00
Apr 30	158	158.00	Apr 30	158.00	Apr 30	158.00	Apr 30	158.00	158.00
May 31	159	159.00	May 31	159.00	May 31	159.00	May 31	159.00	159.00
June 30	160	160.00	June 30	160.00	June 30	160.00	June 30	160.00	160.00
July 31	161	161.00	July 31	161.00	July 31	161.00	July 31	161.00	161.00
Aug 31	162	162.00	Aug 31	162.00	Aug 31	162.00	Aug 31	162.00	162.00
Sept 30	163	163.00	Sept 30	163.00	Sept 30	163.00	Sept 30	163.00	163.00
Oct 31	164	164.00	Oct 31	164.00	Oct 31	164.00	Oct 31	164.00	164.00
Nov 30	165	165.00	Nov 30	165.00	Nov 30	165.00	Nov 30	165.00	165.00
Dec 31	166	166.00	Dec 31	166.00	Dec 31	166.00	Dec 31	166.00	166.00
To Annual Expense		166.00	To Annual Expense		166.00	To Annual Expense		166.00	166.00

Sheet No. _____

Name _____
Address _____

Sheet No. _____

Name _____
Address _____

40

Sheet No. _____

Name _____
Address _____

Phenol Recovery Plant
Wagiv

1915		1915		1915		1915	
Month	Year	Month	Year	Month	Year	Month	Year
July	1915	Aug	1915	Sept	1915	Oct	1915
31	1915	31	1915	31	1915	31	1915
31	1915	31	1915	31	1915	31	1915

of the Bureau. Records maintained this way will not be subject to tampering and will be subject to audit by the Bureau.

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Sara Anne O'Connell Operator
#4135

1911		1912	
Mar 31	Number	16	32
		117	117
Apr 30		67	10
		68	31.50
		80	1.00
		91	3.51
		94	317.38
		94	30.00
May 31		94	4.74
		94	20.00
		94	1.18
		94	1.00
		103	.24
		103	.24
		103	370.01
		103	86.22
		103	8.00
		103	2.00
		103	2.10
		103	9.00
		103	3.30
		103	12.00
		103	10.80
		103	1.74
		103	3.00
		103	183.84
		103	11.64

Sheet No. _____

Name

Address

Sheet No. _____

Name

Address

Penol Plant P. A. Edison.

1911			1912		
May 31	Transfer	58 480.00	May 31	2nd 113.20	480.00

Sheet No. _____

Name _____

Address _____

Sheet No. 50

Name _____

Address _____

A. Pierman Labor & matlfon

1908			1908			1908		
Sept. 30	To Voucher	43	1,33	Sept. 30	By L.M. Lurice	483	1,33	
Feb. 27	"	45	500	Feb. 27	"	867	535	
1908	"	75	173	Feb. 31	" Voucher	96	171	
Oct. 31	" Invoice	2885	173	Mar. 30	" L.M. Lurice	291	174	
Nov. 30	" Voucher	32	173	1908	"		174	
Dec. 28	"	104	173	Feb. 29	"	500	150	
Feb. 29	"	140	173	Mar. 30	"	569	150	
Mar. 30	"	127	173	July 31	"	687	136	
July 31	"	134	173	Sept. 30	"	688	136	
Sept. 30	"	119	173	Oct. 31	"	666	177	
Oct. 31	"	10	173					
1908			1908			1908		
Nov. 30	" Voucher	15	136	Nov. 30	By L.M. Lurice	8295	136	
Feb. 28	"	102	70	Feb. 29	"	8613	75	

George Poppa Labor & matlfon

1908			1908				
Sept 30	To Voucher	96	12	Sept 30	By L.M. Invoice	483	12

Sheet No. 51

Name
AddressPrint and Mount Photo Jobbing Convention
2200

1910	July 31 To Voucher	82	40	1910	July 31 By G. L. W. Inc. 2450	40
1913	Mar 31 To Lumber	120		1913	Mar 31 By E. S. B. Inc. 7821	3451
	Apr 30 " " "	110		1913	Apr 30 " " " "	143

Pastern Work on Nickel and Silver #3250

1913	Mar 31 To Lumber	120	3451
	Apr 30 " " "	110	143

Photographic Work - Phonograph Sales Wagon # 2199

1910	July 31 To Voucher	89	500	1910	July 31 By G. L. W. Inc. 2450	625
	" " " "	91	125	1910	Aug " " " " "	1365
	Aug 31 " " "	47	90			1491
	" " " "	91	25			
	" " " "	97	1000			
	" " " "	97	500			
			1490			

Pen Rollers #3292

1913	Mar 31 To Lumber	120	520	1913	Mar 31 By G. L. W. Inc. 7821	520
------	------------------	-----	-----	------	------------------------------	-----

Sheet No. 52

Name
AddressFallon Work on Steel Pocket
3311

1913	Mar 31 To Lumber	120	1913	Mar 31 By E. S. B. Inc. 7821	1913	Mar 31 By E. S. B. Inc. 7821
	Apr 30 " " "	110	1913	Apr 30 " " " "	1913	Apr 30 " " " "
	July 31 " " "	120	1913	July 31 " " " "	1913	July 31 " " " "

Productive Kinetic Phone Studio Equipment #3310

1913	Apr 30 To Lumber	101	89	1913	Apr 30 By G. L. W. Inc. 2450	13943
	" " " "	125	210	1913	May 31 " " " "	13943
	" " " "	140	13640	1913	June 30 " " " "	13943
	Mar 31 " " "	19	13640			
	" " " "	37	116			
	" " " "	37	2450			
	" " " "	51	3715			
	" " " "	62	825			
	" " " "	66	2016			
	" " " "	67	81			
	" " " "	88	1174			
	" " " "	96	355			
	" " " "	118	208			
	" " " "	123	504			
	" " " "	125	1156			
	" " " "	137	1150			
	" " " "	138	233			
	" " " "	142	17824			
	June 30 " " "	17	1575			
	" " " "	23	629			
	" " " "	30	121			
	" " " "	40	179			
	" " " "	46	324			
	" " " "	45	2314			
	" " " "	61	163			
	" " " "	62	163			
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	" " " "	96	163			
	" " " "	97	163			
	" " " "	98	163			
	" " " "	99	163			
	" " " "	100	163			

Sheet No. _____

Name _____

Address _____

Pattern Work on *Open Forch Extracting* #33121875
APR 30 To Lumber 140.00

33.58

1875

APR 30 By E.S.B. In. 7357

33.58

1875

Pattern Work on *Swivel Blocks* #3315

APR 30 To Lumber 140.00

126

APR 30 By E.S.B. In. 7358

126

Sheet No. _____

Name _____

Address _____

Pattern Work on *Automatic Lube Ringing Machine* #3325

1875

APR 30 To Lumber 140.00

91.08

APR 30 By E.S.B. In. 7359

91.08

MAY 31 " " 144

51.87

MAY 31 " " 7473

51.87

JUN 30 " " 123

1113

JUN 30 " " 7473

1113

JULY 31 " " 179

214

JULY 31 " " 7473

214

AUG 30 " " 116

1034

AUG 30 " " 7473

1034

1875

APR 30 To Lumber 140.00

38.0

APR 30 By E.S.B. In. 7362

38.0

Sheet No. _____

Name
AddressJ. B. Powers
L. M.

1900

July 28	Lumber	103	130	July 28	L. M. Lumber	5614	683
"	"	103	60	"	"	5616	25
"	"	118	25	Mar 31	"	5737	300
"	"	131	193	Apr 30	"	5613	988
"	"	136	300				
Apr 30	"	37	909				
			1899				

1901

Cotton Work for Chickering & Co.

Mar 31	Lumber	106	1745	Mar 31	568 L. M. Lumber	5674	8743
Apr 30	"	116	1974	Apr 30	"	5613	1074

Sheet No. _____

Name
AddressPersonal Experimental Work
5474

58

1900

May 31	Lumber	10	70300	May 31	L. M. Lumber	5674	70300
"	"	50	160	"	"	5674	5674
"	"	173	793	July 31	"	1024	35
"	"	28	107	Aug 31	"	1024	1543
"	"	116	300	Dec 31	"	1024	2024
"	"	176	01	Mar 31	"	1111	15001
"	"	177	5371				276
"	"	41	11				1063
"	"	48	53				1063
"	"	80	183				1063
"	"	147	216				1063
"	"	157	25				1063
"	"	21	16				1063
"	"	21	23				1063
"	"	97	111				1063
"	"	152	100				1063
"	"	200	936				1063
"	"	200	20				1063
"	"	226	1006				1063
"	"	176	717				1063
"	"	30	47				1063
"	"	10	10				1063
"	"	10	10				1063

B. B. 175

B. B. 175

B. B. 175

B. B. 175

B. B. 175

B. B. 175

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B. B. 175

B. B. 175

B. B. 175

B. B. 175

B. B. 175

B. B. 175

Sheet No.

Name

Address

Pattern for Binding Magazine

May 31, 1936

538 May 31. Attnr M^r Sur 1000.

338

Patterns for Pullover Mendocino

May 31. Banker. 1933

May 31 2d. Adm. Soc. Ser 10019.

617.

Sheet No.

Name .
Address

(Saltire) #2978-2979 #3268

Aug. 31. Number: 231.

1897 Aug 31 By Edison L.B. & Son 10792.

1997

Pattern 438⁵¹

Aug 31. Lumber 221.

3113 Aug 31 By Edison S. B. Co. Inv. 10793

343

Sheet No. _____

Name _____
Address _____Callows as per sketch #564
1897

1897	Aug. 31	Donker	177	Aug. 31	Edmund Thomsen	1813	177
------	---------	--------	-----	---------	----------------	------	-----

Saddle Spoke 1897

1897	Aug. 31	Donker	177	1897	Sept. 30	Edmund Thomsen	1813	1260
1897	Oct. 31	"	177	1897	Jan. 31	"	1813	1452
1897	July 27	Edmund Thomsen	1813	1897	Aug. 27	Donker	30	771

Sheet No. _____

Name _____
Address _____Callows as per sketch #564
1897

1897	Aug. 31	Donker	177	1897	Sept. 30	Edmund Thomsen	1813	177
------	---------	--------	-----	------	----------	----------------	------	-----

Callows as per sketch #564
1897

1897	Aug. 31	Donker	177	1897	Sept. 30	Edmund Thomsen	1813	1260
1897	Oct. 31	"	177	1897	Jan. 31	"	1813	1452
1897	July 27	Edmund Thomsen	1813	1897	Aug. 27	Donker	30	771

Sheet No.

Name _____

Address

Callan Joseph Pipe Drafting & Design 4980

1895		1895	
Sept 30	Truck 700	1508	Sept 30 Edison Phonograph Co. 10103
			1508

Patterns

1915	Sept. 30. Lunch - 200.	78	1915	Sept. 30. E. B. Co. Inc. 1000.	78
------	------------------------	----	------	--------------------------------	----

Sheet No.

Name _____

Address

Pattern #399v

			1915		
Oct 31	Kan. Her 177	338	Oct 31	Econ. Soc. Ind. No. 33	338

Pattern #3996

1915				3239	Oct 31	1915	3239
Oct 31	Nov 1	1915	3239	Oct 31	1915	3239	3239

Sheet No. _____

Name
AddressPattern
#3999

1915

Oct 31. Lumber 177.

60

Oct 31. Lumber 177.

60

Pattern
#3999

1915

Oct 31. Lumber 177.
1915

15

Oct 31. Lumber 177.

15

Sheet No. _____

Name
AddressPattern
#3999

1915

Nov 30. Lumber 66.

116

Dec 31. " 16.

116

Jan 31. " 17.

116

Feb 31. " 111.

111

116

Nov 30. Lumber 116.

116

Dec 31. " 116.

116

Jan 31. " 116.

116

116

Nov 30. Lumber 116.

116

Dec 31. " 116.

116

Jan 31. " 116.

116

Pattern
#3999

1915

Nov 30. Lumber 101.

116

Dec 31. " 116.

116

116

Nov 30. Lumber 116.

116

116

Nov 30. Lumber 116.

116

Sheet No.

Name _____

Address

Chadwick, Gladys (1900)

1801

[illegible]

Pattern for Continuous Ledger

1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100																																						
Dec. 31. November	96	100	104	108	112	116	120	124	128	132	136	140	144	148	152	156	160	164	168	172	176	180	184	188	192	196	200	204	208	212	216	220	224	228	232	236	240	244	248	252	256	260	264	268	272	276	280	284	288	292	296	300	304	308	312	316	320	324	328	332	336	340	344	348	352	356	360	364	368	372	376	380	384	388	392	396	400	404	408	412	416	420	424	428	432	436	440	444	448	452	456	460	464	468	472	476	480	484	488	492	496	500	504	508	512	516	520	524	528	532	536	540	544	548	552	556	560	564	568	572	576	580	584	588	592	596	600	604	608	612	616	620	624	628	632	636	640	644	648	652	656	660	664	668	672	676	680	684	688	692	696	700	704	708	712	716	720	724	728	732	736	740	744	748	752	756	760	764	768	772	776	780	784	788	792	796	800	804	808	812	816	820	824	828	832	836	840	844	848	852	856	860	864	868	872	876	880	884	888	892	896	900	904	908	912	916	920	924	928	932	936	940	944	948	952	956	960	964	968	972	976	980	984	988	992	996	1000

Sheet No..

Name _____

Address

Patterns for Pipe Laying

21/020

[illegible]

Patterns

[illegible]

Sheet No. 101Name
Address

Pattern as per Blue Print # 2293

SEE FIRST PAGE FOR NAME OF ADDRESS, ETC.

1911		1911	
Mar 31 To Voucher	116	805 Mar 31 By Estab, Inv 3627	77.58
" " " "	117		
" " " "	118	23.18	
		77.58	77.58

Pattern # 1900 per Rpt # 2345

1911		1911	
apl 30 To Voucher	113	150 apl 30 By Estab, Inv 3832	51.8
" " " "	114	3.00	
" " " "	115	6.5	
		51.8	51.8

Pattern # 1910 & 1912 # 2363

1911		1911	
apl 30 To Voucher	113	300 apl 30 By Estab, Inv 3837	111.6
" " " "	114	6.00	
" " " "	115	2.6	
		111.6	111.6

Sheet No. 104Name
Address

Pattern # 1927-1928-1929 1930 & 1931 # 2382

SEE FIRST PAGE FOR NAME OF ADDRESS, ETC.

1911		1911	
apl 30 To Voucher	113	264 apl 30 By Estab, Inv 3851	58.7
" " " "	114	5.07	
" " " "	115	9.6	
		58.7	58.7

Pattern # 1934 # 2392

1911		1911	
apl 30 To Voucher	113	113 apl 30 By Estab, Inv 3851	58.4
" " " "	114	22.5 May 31 " " " 4125	76
" " " "	115	46	
May 31 " " "	115	38.5	
" " " "	116	33	
		69.2	

Pattern # 1936 # 2394

1911		1911	
apl 30 To Voucher	113	172 apl 30 By Estab, Inv 3851	55.2
" " " "	114	3.41	
" " " "	115	37	
		55.2	

Sheet No. 105

Name
Address

J. H. Powers L + M

Sheet No. 121

Name
Address

Put Removable Piece on Pattern #3116

1911	May 31 To Voucher	89	500	May 31 By L + M Inv	4158	500
	June 30 " " "	51	150	June 30 " " "	4329	150
	July 31 " " "	3	50	July 31 " " "	4650	50
	Aug 31 " " "	76	250	Aug 31 " " "	4658	250
	Sept 30 " " "	104	998	Sept 30 " " "	6268	998
1912	Oct 31 To Voucher	39	350	Oct 31 By L + M Inv	8169	350
	Nov 30 " " "	46	1132	Nov 30 " " "	8291	1357
	Dec 31 " " "	56	220	Dec 31 " " "	8417	759
	Jan 31 " " "	161	188	Jan 31 " " "	8529	2760
	Feb 28 " " "	60	458			7699
1912	Mar 31 " " "	156	121			
	Apr 30 " " "	45	160			
	May 31 " " "	57	2300			
	June 30 " " "	124	7668			

Pattern # 144 G

2399

1911	May 31 To Voucher	115	863	1911	May 31 By E. C. B. Inv	4120	1423
	June 30 " " "	116	428				
	July 31 " " "	117	128				
	Aug 31 " " "		102				

Pattern # 614

2403

1911	May 31 To Voucher	117	42	1911	May 31 By E. C. B. Inv	4120	42
	June 30 " " "	117	70		June 30 " " "	4219	113
	July 31 " " "	119	28				
	Aug 31 " " "		102				

1912	Oct 31 To Voucher	46	1912	Oct 31 By E. C. B. Inv	4620	46
------	-------------------	----	------	------------------------	------	----

Pattern as per Sketch #3126

1912	Oct 31 To Voucher	125	1912	Oct 31 By E. C. B. Inv	4620	125
------	-------------------	-----	------	------------------------	------	-----

Pattern

3126

1912	Nov 30 To Voucher	126	1912	Nov 30 By E. C. B. Inv	4620	126
------	-------------------	-----	------	------------------------	------	-----

Sheet No. _____

Name _____

Address _____

Patterson

#3143

1910 Nov 30 Dec 31	To Cash	124	1166	Nov 30 By Edith Linn	6726	1106
	"	152	1110	" " " "	6897	1110
			4716			2116

Patterson

#3144

1910 Nov 30 Dec 31	To Cash	124	2232	Nov 30 By Edith Linn	6726	2232
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Patterson

#3145

1910 Nov 30 Dec 31	To Cash	124	960	Nov 30 By Edith Linn	6726	960
	"	152	2232	" " " "	6897	2232
			1152			1152

Sheet No. _____

Name _____

Address _____

Patterson

#3146

1910 Nov 30 Dec 31	To Cash	124	1267	Nov 30 By Edith Linn	6726	1267
	"	152	2232	" " " "	6897	2232
			1165			1165

Patterson for by Lidoor Head

#3147

1910 Nov 30 Dec 31	To Cash	83	15	Nov 30 By Lidoor Head	6726	37121
	"	124	2232			2232
			27121			27121

Patterson

#3148

1910 Nov 30 Dec 31	To Cash	124	2232	Nov 30 By Edith Linn	6726	2232
	"	152	2232	" " " "	6897	2232
			2232			2232

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Sheet No. _____

Name
Address

Pattern

#3141

1910	Nov	30	To Lumber	1200	500	1910	Nov	30	By B. H. H. Co. Inc	4400	520
------	-----	----	-----------	------	-----	------	-----	----	---------------------	------	-----

Pattern

#3150

1910	Nov	30	To Lumber	1200	900	1910	Nov	30	By B. H. H. Co. Inc	4400	900
------	-----	----	-----------	------	-----	------	-----	----	---------------------	------	-----

Photo from Negatives

#3148

1910	Dec	31	To Lumber	150	2400	1910	Dec	31	By B. H. H. Co. Inc	1800	260	5925
	"	"	"	150	200							
1910	"	"	"	150	3340							
Jan	31	"	"	100	1800							
"	"	"	"	100	1800							
"	"	"	"	100	1800							
					5925							

128

Sheet No. _____

Name
Address

Pattern for Shaving Machine Motor

#3195

1910	Dec	31	To Lumber	150	3000	1910	Dec	31	By B. H. H. Co. Inc	4400	3000
------	-----	----	-----------	-----	------	------	-----	----	---------------------	------	------

Punk Pattern Packs in Shaw

#3196

1910	Dec	31	To Lumber	150	3000	1910	Dec	31	By B. H. H. Co. Inc	4400	3000
------	-----	----	-----------	-----	------	------	-----	----	---------------------	------	------

50 Pins

#3151

1910	Dec	31	To Lumber	150	3000	1910	Dec	31	By B. H. H. Co. Inc	4400	3000
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Sheet No. _____

Name _____

Address _____

Patterns for East Shore Rail #3186

1875	Jan 31	To Lumber	150	1875	Dec 31	By Lumber	150	26
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Patterns #3196

1875	Jan 31	To Lumber	150	1875	Dec 31	By Lumber	150	26
------	--------	-----------	-----	------	--------	-----------	-----	----

Patterns for Universal Shaving Machine Motor #3201

1875	Jan 31	To Lumber	150	1875	Dec 31	By Lumber	150	26
1875	Jan 31	"	"	1875	Jan 31	"	"	26

Sheet No. _____

Name _____

Address _____

Patterns #3203

1875	Jan 31	To Lumber	150	1875	Dec 31	By Lumber	150	26
1875	Jan 31	"	"	1875	Jan 31	"	"	26

Patterns #3211

1875	Jan 31	To Lumber	150	1875	Dec 31	By Lumber	150	26
------	--------	-----------	-----	------	--------	-----------	-----	----

Patterns #3212

1875	Jan 31	To Lumber	150	1875	Dec 31	By Lumber	150	26
------	--------	-----------	-----	------	--------	-----------	-----	----

Sheet No. _____

Name _____
Address _____

Starting Lanes

3214

1913			1913		
Jan 31 To Lumber	155	3695	Jan 31 Lumber	6901	3695
Feb 28 " "	124	574	Feb 28 By E.S.B. Inr	7072	574
Mar 31 To Lumber	120		1913		
Apr 30 " "	116		Mar 31 By E.S.B. Inr	7210	217
Aug 30 " "	116		Apr 30 " " "	7341	878
			Aug 31 " " "	7561	679

Cutting Ethal Stk on Each Side of 20 Ruffal Dms #3225

1913			1913		
Jan 31 To Lumber	155	723	Jan 31 Lumber	6901	723

Pattern

3235

1913			1913		
Jan 31 To Lumber	155	126	Jan 31 Lumber	6901	127

Sheet No. _____

Name _____
Address _____

Pattern Work as Required on Patterns #3245

1913			1913		
Jan 31 To Lumber	155	10	Jan 31 Lumber	6901	10
Feb 28 " "	124	69	Feb 28 By E.S.B. Inr	7077	69
Mar 31 To Lumber	120		1913		
Apr 30 " "	120		Mar 31 By E.S.B. Inr	7218	210
			Apr 30 " " "	7345	168

Turning up Boyd #3240

1913			1913		
Jan 31 To Lumber	39	157	Jan 31 By E.S.B. Inr	7098	152 34
Feb 28 " "	124	152 34	Feb 28 " "	7098	152 34
Mar 31 To Lumber	120	132 58	Mar 31 By E.S.B. Inr	7217	132 58

Pigeon Hole Cabinet #3232

1913			1913		
Jan 31 To Lumber	124	246	Jan 31 By E.S.B. Inr	7068	246

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Sheet No. _____

Name
Address

Pattern #3260

1913	July 22	To Lumber 120	1913	July 22	By E.S.B. In	7205	203

1913	July 22	To Lumber 120	1913	July 22	By E.S.B. In	7206	203
	Mon 31	To Lumber 120	1913	Mon 31	By E.S.B. In	7205	35154

1913	July 22	To Lumber 120	1913	July 22	By E.S.B. In	7205	1632

Sheet No. _____

Name
Address

Patterns #3401

1913	July 30	To Lumber 120	1913	July 30	By E.S.B. In	7205	713
	July 31	" " 129		July 31	" " " "	7762	807

1913	July 30	To Lumber 120	1913	July 30	By E.S.B. In	7205	501
	July 31	" " 129		July 31	" " " "	7762	13519
	Aug 30	" " 129		Aug 30	" " " "	8026	5968
	Sept 30	" " 129		Sept 30	" " " "	8138	22634
	Oct 31	" " 129		Oct 31	" " " "	8260	27641
	Nov 30	" " 129		Nov 30	" " " "	8381	54093
	Dec 31	" " 129		Dec 31	" " " "	8403	

1913	July 30	To Lumber 120	1913	July 30	By E.S.B. In	7205	263

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Sheet No. _____

Name _____
Address _____

Patterns #3404

June 30	To Balance	129	339	June 30	By E.B.B. Co. Inc.	7626	339
July 31	" "	129	263	July 31	" " "	7762	263

June 30	To Balance	125	40	June 30	By E.B.B. Co. Inc.	7627	40
July 31	" "	129	210	July 31	" " "	7763	210

June 30	To Balance	120	279	June 30	By Balance	7576	1692
July 31	" "	116	210	July 31	" " "	7718	1267
" "	" "	129	3575	" "	" " "	7719	755
Aug 31	" "	116	3893	" "	" " "	7720	585
Sept 30	" "	72	185	" "	" " "	7721	490
" "	" "	109	14878	" "	" " "	7722	1465
Oct 31	" "	127	13264	Aug 31	" " "	7834	3353
" "	" "	107	1158	" "	" " "	7835	655
Nov 30	To Balance	150	162	" "	" " "	7836	2420
" "	" "	125	7864	" "	" " "	7837	1255
Dec 31	" "	154	5484	Sept 30	" " "	7904	1290
" "	" "	224	31471	" "	" " "	7964	2382
				" "	" " "	7990	24678
				Oct 31	" " "	8022	8463
				Nov 30	" " "	8197	12283
				Dec 31	" " "	8216	10064
							15744

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Sheet No. _____

Name _____
Address _____

Patterns #3414

July 31	To Balance	129	5902	July 31	By E.B.B. Co. Inc.	7763	5902
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July 31	To Balance	129	516	July 31	By E.B.B. Co. Inc.	7763	516
---------	------------	-----	-----	---------	--------------------	------	-----

July 31	To Balance	129	715	July 31	By E.B.B. Co. Inc.	7763	715
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Name _____
Address _____

Pattern #3421

July 31	To Lumber	129	37	July 31	By E.S.B. & Son	7763	370
---------	-----------	-----	----	---------	-----------------	------	-----

1913 Pattern/Work as Required on Ring Street Feed.
1913

July 31	To Lumber	129	3269	July 31	By E.S.B. & Son	7763	3269
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1913 Patterns for Air Insulated Cutting Machine
1913

July 31	To Lumber	129	1627	July 31	By E.S.B. & Son	7764	1627
July 31	"	116	98	July 31	"	7879	98

Name _____
Address _____

Pattern #3429

July 31	To Lumber	129	600	July 31	By E.S.B. & Son	7764	600
---------	-----------	-----	-----	---------	-----------------	------	-----

1913 Pattern #3432
1913

July 31	To Lumber	129	150	July 31	By E.S.B. & Son	7813	150
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1913 Pattern #3436
1913

July 31	To Lumber	129	395	July 31	By E.S.B. & Son	7764	395
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Sheet No.

Name _____
Address _____

Patterns #3437

[illegible]

1913

Patterns

July	31	To Chamber	129.	170	July 31	By S. S. B. Co. Inc.	7765.	170
Aug	30	" "	116.	123	Aug 31	" " "	7879.	173

1913

Pattern Work on Pacing Collar Grinding Fixture 1913 #31147

July 31	To Transfer	129	1639	July 31	By E. S. B. Co. Dr	7765	1639
Aug 30	" "	130	60	Aug 31	" " " "	7879	60

Sheet No.

Name
Address

Patterns #3456

1892		1893		1894		1895	
Aug 31	To Transfer	116	1893	Aug 31	By B. S. C. L. L.	1577	1894

1913

Patterns 1949 4.3.58

Aug 31 To Transfer 116.	110	Aug 31 By SSB Co Inv 7899	110
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1813

Patterns 31/63

Aug 31	20 Humber	116	1027	Aug 31	By E.S.B Co Inc	7879	1027
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143

Sheet No. _____

Name _____

Address _____

Pocket Corrugating Lir
#3490

1913

Sept 30	To Lumber	109	151.54	Sept 30	By E.L.B. Co. Inv 7999	151.54
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Sheet No. _____

Name _____

Address _____

Pattern Work
#3503

144

1913

Sept 30	To Lumber	109	47.57	Sept 30	By E.L.B. Co. Inv 7999	47.57
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1913

Clear Blocks on Bottom of Tinning up Bldg
1913

Sept 30	To Lumber	109	892	Sept 30	By E.L.B. Co. Inv 7999	892
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1913

Pattern
1913 2529

Sept 30	To Lumber	109	501	Sept 30	By E.L.B. Co. Inv 7999	501
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1913

Plaster for Carbon Pipe Rheostat
1913

Sept 30	To Lumber	109	30.50	Sept 30	By E.L.B. Co. Inv 7999	30.50
Oct 31	"	122	165	Oct 31	"	165
Nov 30	"	117	33.75	Nov 30	"	33.75

1913

Pattern for Pole Milling Drying
1913

Sept 30	To Lumber	109	122.5	Sept 30	By E.L.B. Co. Inv 7999	122.5
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145

Sheet No. _____

Name
AddressPatterns
#3517

Sept 30 L Lumber 109 2.50 Sept 30 34 L.S.B. Co. Inc 7797 2.80

146

Sheet No. _____

Name
AddressPlan/Dest. & Gasburg
#3521

Dec 31 Lumber 156 2.00 Dec 31 81 L.S.B. Co. Inc 8329 2.20

1913

Patterns for Lube Ringing Machine
#3535

Oct 31 L Lumber 107 1.56 Oct 31 34 L.S.B. Co. Inc 8107 2.56

1914

Pattern/Book on 1/2 Lube Ringing Machine
#3539

Jan 31 Lumber 107 32.15 Jan 31 34 L.S.B. Co. Inc 8107 32.15
Feb 28 " 156 33.25 Feb 28 " 156 33.25

1913

Receipts
#3540

Jan 30 L Lumber 126 7.29 Nov 30 34 L.S.B. Co. Inc 8107 7.29
Mar 31 " 106 07 Mar 31 " " 8720 07
Apr 30 " 116 21 Apr 30 " " 8721 21

1914

Pattern/Book on 1/2 Lube Stock Bussing Machine
#3541

Jan 31 Lumber 107 6.79 Jan 31 34 L.S.B. Co. Inc 8107 6.79

1249

Sheet No. _____

Name
AddressPatterns
13652

1911	Apr 30	Voucher	116	1347	Apr 30	By	Rem'd S.B. Co. Linn	8813	1347
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1911	Apr 30	Voucher	116	2232	Dec 31	By	Rem'd S.B. Co. Linn	8813	2237
	May 31	"	115	2405					2237
				2237					

1912	Apr 30	Voucher	116	1243	Apr 30	By	Rem'd S.B. Co. Linn	8814	1243
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150

Sheet No. _____

Name
AddressPatterns for Iron Oxide Magnet
13664

1911	Apr 30	Voucher	116	1639	Apr 30	By	Rem'd S.B. Co. Linn	8814	1639
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1911	May 31	Voucher	115	7413	May 31	By	Rem'd S.B. Co. Linn	8817	7413
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1912	June 30	Voucher	27	166	June 30	By	Rem'd S.B. Co. Linn	9000	617
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Sheet No. _____

Name _____
Address _____Photo of Primary Battery Plant
#3638

1911		1912		1913		1914		1915	
June 30	106	529	June 30	Edwards & Co	9001	529			
July 31	136	447	July 31	"	9103	447			
Aug 30	90	110	Aug 30	"	9175	110			
Sept 31	115	191	Oct 31	"	9269	191			
Oct 31	157	157	Nov 31	"	9553	157			
Nov 31	177	88	Dec 31	"	10493	88			

Sheet No. _____

Name _____
Address _____Pattern for Shell Sediment Removing Machine
#3714

1911		1912		1913		1914		1915	
Aug 30	106	529	Aug 30	Edwards & Co	9001	529			
Sept 30	136	447	Sept 30	"	9103	447			
Oct 30	90	110	Oct 30	"	9175	110			
Nov 30	115	191	Nov 30	"	9269	191			
Dec 30	157	157	Dec 30	"	9553	157			
Jan 31	177	88	Jan 31	"	10493	88			

1911

Pattern for Aug Spool Crusher
#3641

June 30	106	110	June 30	Edwards & Co	8970	110
July 31	136	273	July 31	"	9068	273
Aug 30	90	800	Aug 30	"	9215	800

1911

Pattern Work to make Logriaps for Crapping
#3714

Aug 30	106	529	Aug 30	Edwards & Co	9001	529
Sept 30	136	447	Sept 30	"	9103	447
Oct 30	90	110	Oct 30	"	9175	110
Nov 30	115	191	Nov 30	"	9269	191
Dec 30	157	157	Dec 30	"	9553	157
Jan 31	177	88	Jan 31	"	10493	88

1911

Pattern Work on Automatic Machine
#3714

July 31	106	5470	July 31	Edwards & Co	9070	5470
Aug 30	90	966	Aug 30	"	9207	966
Sept 30	95	135	Sept 30	"	9311	135

1911

Pattern for M-20 Can Side Building Pits
#3714

Aug 30	106	529	Aug 30	Edwards & Co	9001	529
Sept 30	136	447	Sept 30	"	9103	447
Oct 30	90	110	Oct 30	"	9175	110
Nov 30	115	191	Nov 30	"	9269	191
Dec 30	157	157	Dec 30	"	9553	157
Jan 31	177	88	Jan 31	"	10493	88

Sheet No. _____

Name _____

Address _____

Patterns on Diamond Grinding Machine

113829

1915			1915		
July 28	Transfer	July	July 28	By Chem. S. B. Loring	July 28

1215

Pattern #2905 #3833

July 20	Lumber	144	193	July 25	By Chain S. & Co. 1000 07/25	193
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1965

Pattern 6 175 #3836

[illegible]

Sheet No. _____

Name
Address

Father's Trust B
#3843

1795	Feb 20	Kunich	1157	510	Feb 28	Byrd and H.B. to San Jose	9943	510
------	--------	--------	------	-----	--------	---------------------------	------	-----

1915

Photo of Window Fire Tests

July 28	Conner	117	311	July 27	By & Chas. W. Surr	168	550
Dec 31	J. E. Lawrence		239				
	Surf		66				CC

1915

Patterns for Mercury bufs.
1215 2.38/52

[illegible]

Sheet No. _____

Name _____
Address _____Pattern for Aluminum Casting
#5857

1915
Mar 31 Lumber 271 144 Mar 31 By E.B.B. Co. 9810 144

1915
Mar 31 Lumber 171 193 Mar 31 By E.B.B. Co. 9813 193

1915
Apr 30 Lumber 202 648 Apr 30 E.B.B. Co. 9939 648

Sheet No. _____

Name _____
Address _____

Pattern #5918

1915
May 31 Lumber 273 613 May 31 E.B.B. Co. 10004 613

1915
May 31 Lumber 293 130 May 31 E.B.B. Co. 10005 130
June 30 " 251 367 June 30 " 10007 367

1915
May 31 Lumber 293 73 May 31 E.B.B. Co. 10007 73
June 30 " 251 263 June 30 " 10009 263

163

Sheet No. _____

Name _____

Address _____

Punch & Die

1892-4

June 30	Voucher	62	386	June 30	By L. B. Co. Dr	10104	10117
"	"	160	596	"	"	"	"
"	"	751	9135	"	"	"	"

164

Sheet No. _____

Name _____

Address _____

Patterns

1892-3

June 30	Voucher	251	1447	June 30	Edw. L. Co. Dr	10113	10127
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1915

Patterns

1892-6

June 30	Voucher	119	10	June 30	Edw. L. Co. Dr	10117	3334
"	"	251	3319	"	"	10116	116
July 31	"	112	116	"	"	"	"

1915

Patterns

1892-6

June 30	Voucher	251	716	June 30	L. B. Co. Dr	10105	716
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1915

Phenol

1892-6

June 30	Voucher	167	618	June 30	Phenol Co. Dr	10161	1164
"	"	122	738	"	"	10153	739
Oct 31	"	87	578	Oct 31	"	10499	3296
"	"	41	167	Nov 30	"	10461	13104
"	"	96	578	Dec 31	"	10488	24000.4
"	"	120	521	"	"	10783	12500.4
Nov 30	"	118	738	"	"	"	"
"	"	124	293	"	"	"	"
"	"	188	277	"	"	"	"
Dec 31	"	42	24000.4	"	"	"	"
"	"	233	12500.4	"	"	"	"

1915

Patterns

1892-6

June 30	Voucher	251	428	June 30	L. B. Co. Dr	10106	428
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Sheet No. _____

Name _____

Address

Patterns #2970-2971 (Make one each)
#393v

1954	June 20	Voucher	751	1955	June 20	By E.B.B. Co Inc	10107	1955
------	---------	---------	-----	------	---------	------------------	-------	------

1915	June 30	Voucher	251	1580	June 30 By L.B. & Co. Inc 10108	1580
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Patterns #3941									
June 30	Wander	201	June 30	Wander	201	June 30	Wander	201	June 30

Sheet No. _____

Name _____

Address

Plane 50 516 Grids
13943

June 30	Voucher	251	585	June 30 By L.B.B. to Inv 10/109	585
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12.5	July 31	Launcher	26	53	July 31	Painted Wood	1000	587
			187	146				
			26	690				

Patterson, 1915									
July 31	Voucher	256	1604	July 31	C.S.B Co. Inv	10000	1604		

Sheet No. _____

Name _____
Address _____Pattern for Bench Latch
397-3

July 31	1886	7915	July 31	Edwin Chas. Hobbs	1886	7915
Sept 30	1887	378	Sept 30	"	1887	378

1915
 Direct for Sample 397-3
 July 31 Lumber 256 1838
 July 31 Edwin Chas. Hobbs 1838 1838

1915
 Pattern for Key Guard
 Aug 31 Lumber 221 7047
 Aug 31 E. B. Chas. Lumber 10039 7047

Sheet No. _____

Name _____
Address _____Pattern of Bench Boss
H.A.O.

Jan 31	1886	2151	Jan 31	Edwin Chas. Hobbs	1886	2151
Jan 31	1887	2151	Jan 31	"	1887	2151

1915
 Edward Charles Hobbs
 Jan 31 Lumber 1151 1151
 Jan 31 Edwin Chas. Hobbs 1151 1151

1915
 Pattern for Key Guard
 Jan 31 Lumber 1151 1151
 Jan 31 E. B. Chas. Lumber 10039 1151

Name _____

Address _____

Paterson for Diamond Grinding Machines

1405

STANDARD FORM NO. 64									
1966									
Jan 31	115	3.38	Jan 31	115	3.38	Jan 31	115	3.38	Jan 31

Sheet No.

Name _____
Address _____

Pattern 87950-81-82.

delay

1976		1976	
Jan 31	Transfer 145	1476	Jan 31 E.B.B. on loan 108214

Father's

1916	Jan 31	Transfer	118	2676	Jan 31	E S B Co Inv	10547	2676
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Patterns # 7920, 1, 7, 3, 2
81062

1916	Calloway # 7720-1, 2, 3, 4									
Jan 31	Wm. H. 145	1916	Jan 31	E. S. B. Co. 100.00	1916					

Patterns 1573, 1574, 1576, 2526
1456

Jan 31	Lumber	118	248	Jan 31 E.S.B. Co. Inc.	10043	248
--------	--------	-----	-----	------------------------	-------	-----

Saddle Spokes

1916		1918		1918		1918	
Jan 31	Transfer	148	437	Jan 31	Settlements due	10528	437
Dec 31	"	30	2000	July 29	"	11015	2443
"	"	126	438	April 27	"	11736	1662
April 30	"	40	1600				8425
			1490				

Sheet No. _____

Name _____

Address _____

Plunges
J.H.137

1911									
Apr 30	Voucher	110	64	100	Apr 29	100	Apr 29	110	64
Apr 30	"	64		110	Apr 29	"	"	110	64

Personal Experimental Work #3491

1911									
Apr 30	Voucher	94	110	64	Apr 29	110	64	110	64
Apr 30	"	64		110	Apr 29	"	"	110	64

Flame one Boiler Plate #4133

1911									
Apr 30	Voucher	94	110	64	Apr 29	110	64	110	64
Apr 30	"	64		110	Apr 29	"	"	110	64

Sheet No. _____

Name _____

Address _____

Plunges Header #4137

1911									
Apr 30	Voucher	94	110	64	Apr 29	110	64	110	64
Apr 30	"	64		110	Apr 29	"	"	110	64

Plunger for Panged Ell #4138

1911									
Apr 30	Voucher	94	110	64	Apr 29	110	64	110	64
Apr 30	"	64		110	Apr 29	"	"	110	64

Plunger #4139

1911									
Apr 30	Voucher	94	110	64	Apr 29	110	64	110	64
Apr 30	"	64		110	Apr 29	"	"	110	64

Sheet No. _____

Name _____

Address _____

Pattern for New Journal / Skuff
41157

1915

Apr 30	Vanhook	94	176.57	Apr 29	E.R. 1000	94	176.57
May 31	"	135	129.17	"	"	125	129.17

1916

Pattern for New Skilake # 41167

Apr 30	Vanhook	94	10.29	Apr 29	E.M. 1000	94	11.20
May 31	"	135	10.29	"	"	125	10.29

1916

Pattern # 1872
41174

Apr 30	Vanhook	94	57.07	Apr 29	E.M. 1000	94	11.20
May 31	"	67	15	May 30	"	1120	15

Sheet No. _____

Name _____

Address _____

Photo of Mr. E. J. Davis
41180

1916

May 31	Vanhook	135	10.29	May 31	E.D. 1000	94	11.20
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1916

Paddle Spoken # 41197

May 31	Vanhook	135	10.29	May 31	E.D. 1000	94	11.20
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Paddle Blade # 41198

May 31	Vanhook	135	10.29	May 31	E.D. 1000	94	11.20
June 30	"	67	15	June 30	"	1120	15

Sheet No.

Name

Address

Photographic Work
of 30x25

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Name

Address

Plum Co. Standard Pipe & Boiler
#391.

July 31 1924 122 881 July 31 1924 1125 811

Repairs on

45 St. P. Motor #775-100

Radium Experiment #1520-100

Repairs on Mas Edison

Studebaker auto #1926

Repairing Street Auto

for use in New York

Studio #1955

Repairs on

100 Waverly Wagon #1475

Repairs on

San American Auto #1979

Repairs on J. Miller

Studebaker auto #1994

Repairs & Supplies

for 45 St. P. Motor #2004

Repairs on M. Hughes

Columbia Auto #1921

Record Ending Mach.

Revolving drum for

Separating Plates

Rock Drilling

Ekt. by Electricity

Reinforcing

Lump Picking

Record Experiments

by A. W. Bell

Repairs on Carl

American Auto as

per instructions from

Mr. Edison

Repairing Micro

Scopes for Solar Lark

Relish with safety

valve & thermometer

Randolph Mrs. J. F.

Labor & Mat.

Rolls for Rolling

Nickel Subst.

Rolls to press steam

on nickel subst.

Rolls for Hydrate

finishing

Repairing Lath

on 2nd floor

Repairing Machine

per Apt. (4)

Record Cabinet

(Steel)

Romey Mrs. M.

L. & M.

Repairs on

7 Red Studebaker

Recessed Rolling

Machine etc

Ring Stealing

Machine

Repair Waverly Mach.

for Mileage Sheet

S. Repair, Jone Mould

Russell C. G.

L. & M.

Repair Clean Pump

Reig Chas. L. M.

Rubber bottoms

on Drums

Rails for Reduction

Turnacop

Repairing Sprockets

Repair & Make new

Patterns so. J. L. Mach.

Repair Patterns

Repair Patterns

Repair Motors

Repair 6 Peto

Repairs & Supplies

Barber's Electric

Repair Patterns

Repairs & Supplies

H. Hartshorn Auto

Repair shaft

Recording Machines

for Data Recording

Repairs etc on

Anderson Electric

Rail

Regal is Auto

Ratchets

Repairs to H. Kington

Reaming Machines

Railway signal

Rectifiers

Recording Blanks

Rodman S. P.

Runging Machines

Repair Ammeters

Repair Ammeters

Repair Ammeters

Repair Ammeters

Repair Ammeters

Repair Ammeters

Repairs on

23 Remodel Patterns

Remodel Patterns

24 Rogers J. H. L. M.

217 Rogers J. H. L. M.

25 Reduction Peto

26 Ratchets - Blocks

27 Rogers C. A. L. M.

28 R. & B. Co.

101 R. & B. Co.

102 R. & B. Co.

103 R. & B. Co.

104 R. & B. Co.

105 R. & B. Co.

106 R. & B. Co.

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134 R. & B. Co.

135 R. & B. Co.

136 R. & B. Co.

137 R. & B. Co.

138 R. & B. Co.

139 R. & B. Co.

Sheet No. _____

Name _____
Address _____Sheet No. 41Name _____
Address _____

Repair on J. Miller - Shindbaker Auto. 8/1994

1908

Mar 31 To Voucher

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apl 30
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July 31
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Aug 31
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Sept 30
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Nov 30
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Dec 31
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1908

Mar 31 By B.W. Invoice

32
107
107
313
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433
433
605
694
1115
1300
1385
1462
1999
2077
2238
2619
2854
3091
3239
3476
3669

1.20

20.53

2.74

3.13

3.13

6.56

6.56

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Name
Address

Repairs on J. V. Miley Studelakes auto #1994

REPAIRS ON AUTO BY MILEY, J. V.

1911	Brothmann	237.31	1911	Brothmann	237.31
May 31 To Voucher	115	622	May 31 By E.C. Long Ins	4113	984
" " " "	116	311	June 30 " " "	4113	113
" " " "	117	51	July 31 " " "	4472	21
June 30 " " "	117	75	Aug 31 " " "	4580	132
" " " "	117	23	Sept 30 " " "	4773	44
July 31 " " "	110	209	Oct 31 " " "	4933	43
" " " "	111	415	Nov 30 " " "	5076	38
Aug 31 " " "	117	50	Dec 30 " " "	5215	32
" " " "	120	850	Jan 31 " " "	5311	26
" " " "	121	16	Feb 29 " " "	5508	26
Sept 30 " " "	125	16	Mar 30 " " "	5783	63
" " " "	129	10	Apr 30 " " "	5899	13
" " " "	110	6	July 31 " " "	6383	16
Oct 31 " " "	112	125	Aug 31 " " "	6501	15
" " " "	113	262	Sept 30 " " "	6501	15
Nov 30 " " "	117	262	Oct 31 " " "	6501	15
" " " "	118	1261	Nov 30 " " "	6501	15
" " " "	119	36	Dec 30 " " "	6501	15
Dec 30 " " "	120	36	Jan 31 " " "	6501	15
Jan 31 " " "	138	207	Feb 29 " " "	6501	15
Feb 29 " " "	144	16	Mar 30 " " "	6501	15
Mar 30 " " "	147	16	Apr 30 " " "	6501	15
Apr 30 " " "	147	16	May 31 " " "	6501	15
July 31 " " "	147	16	Aug 31 " " "	6501	15
Aug 31 " " "	147	16	Sept 30 " " "	6501	15
Oct 31 " " "	147	16	Nov 30 " " "	6501	15
Dec 31 " " "	147	16	Dec 31 " " "	6501	15
1912	85	460	1912	85	460
July 31	124	634	July 31	124	634
Aug 30 To Voucher	140	1436	Aug 30 To Voucher	140	1436
May 31 " "	88	1436	May 31 " "	88	1436
June 30 " "	110	1436	June 30 " "	110	1436
July 31 " "	120	1436	July 31 " "	120	1436
Aug 31 " "	129	1436	Aug 31 " "	129	1436
Sept 30 " "	90	1436	Sept 30 " "	90	1436

Name
Address

Repairing & supplies for U.S. H.P. Merg auto #2004

REPAIRS

1910	Brothmann	14890	1910	Brothmann	14890
Nov 30 To Voucher	85	10	Nov 30 By Mrs J.A.B. Long	3090	1394
" " " "	108	936	Dec 31 " " "	3244	1394
" " " "	123	360	Jan 31 " " "	3365	1394
" " " "	129	360	Feb 28 " " "	3532	1394
Dec 31 " " "	3	14890	Mar 31 " " "	3744	1394
" " " "	45	676	Apr 30 " " "	3913	1394
" " " "	45	111	May 31 " " "	4139	1394
" " " "	116	631	June 30 " " "	4302	1394
" " " "	119	2330	July 31 " " "	4489	1394
Jan 31 " " "	91	4823	Aug 31 " " "	4657	1394
" " " "	94	5074	Sept 30 " " "	4823	1394
Feb 28 " " "	4	5074	Oct 31 " " "	5074	1394
" " " "	28	1260	Nov 30 " " "	5244	1394
" " " "	33	5044	Dec 31 " " "	5411	1394
" " " "	34	201	Jan 31 " " "	5581	1394
" " " "	44	08	Feb 28 " " "	5744	1394
" " " "	44	08	Mar 31 " " "	5913	1394
" " " "	48	744	Apr 30 " " "	6077	1394
" " " "	49	3956	May 31 " " "	6244	1394
" " " "	56	410	June 30 " " "	6411	1394
" " " "	57	705	July 31 " " "	6577	1394
" " " "	61	872	Aug 31 " " "	6744	1394
" " " "	68	359	Sept 30 " " "	6913	1394
" " " "	95	297	Oct 31 " " "	7077	1394
" " " "	103	2977	Nov 30 " " "	7244	1394
" " " "	104	1794	Dec 31 " " "	7411	1394
Jan 31 " " "	9	1324	Jan 31 " " "	7577	1394
" " " "	17	1500	Feb 28 " " "	7744	1394
" " " "	20	71	Mar 31 " " "	7913	1394
" " " "	31	1900	Apr 30 " " "	8077	1394
" " " "	48	144	May 31 " " "	8244	1394
" " " "	60	523	June 30 " " "	8411	1394
" " " "	77	821	July 31 " " "	8577	1394
" " " "	89	2103	Aug 31 " " "	8744	1394
" " " "	81	1800	Sept 30 " " "	8913	1394
" " " "	110	50	Oct 31 " " "	9077	1394
" " " "	116	1904	Nov 30 " " "	9244	1394
" " " "	117	1877	Dec 31 " " "	9411	1394
Apr 30 " " "	53	1877	Jan 31 " " "	9577	1394
" " " "	69	2000	Feb 28 " " "	9744	1394
" " " "	99	30	Mar 31 " " "	9913	1394
" " " "	116	2195	Apr 30 " " "	10077	1394
" " " "	114	11700	May 31 " " "	10244	1394
" " " "	115	1136	June 30 " " "	10411	1394
" " " "	90	1136	July 31 " " "	10577	1394
May 31 " " "	28	750	Aug 31 " " "	10744	1394
" " " "	115	92	Sept 30 " " "	10913	1394
" " " "	117	4857	Oct 31 " " "	11077	1394
" " " "	7	137	Nov 30 " " "	11244	1394
June 30 " " "	7	364	Dec 31 " " "	11411	1394
" " " "	63	264	Jan 31 " " "	11577	1394
" " " "	63	794	Feb 28 " " "	11744	1394
" " " "	80	190	Mar 31 " " "	11913	1394
" " " "	110	160	Apr 30 " " "	12077	1394
" " " "	117	1797	May 31 " " "	12244	1394
" " " "	118	1797	June 30 " " "	12411	1394
" " " "	118	1797	July 31 " " "	12577	1394

Sheet No. 5Name
AddressRepairing & supplying for U.S.N.R. Mrs auto
#2004

1911	1911	1911	1911	1911	1911
July 31 To Voucher	4	2883.17	July 31 To M.H.I. Day	4440	2883.17
" " " "	31	150	" " " "	4643	1437.8
" " " "	33	408	" " " "	4785	1867.5
" " " "	53	144	" " " "	4942	755.0
" " " "	111	129.86	" " " "	5092	225.5
" " " "	112	352	" " " "	5207	132.9
aug 31 " " "	39	273	" " " "	5373	124.0
" " " "	52	308	" " " "	5510	125.0
" " " "	83	77	" " " "	5653	724.9
" " " "	98	334	" " " "	5813	163.63
" " " "	105	260	" " " "	5961	125.5
" " " "	107	50	" " " "	6109	125.5
" " " "	117	66.1	" " " "	6253	125.5
" " " "	118	132.65	" " " "	6397	125.5
" " " "	2	150.55	" " " "	6548	125.5
sept 30 " " "	38	12	" " " "	6694	250.0
" " " "	57	118	" " " "	6779	110.0
" " " "	85	95			
" " " "	108	57.49			
" " " "	110	70.6			
" " " "	67	200			
" " " "	112	45.25			
" " " "	115	42.6			
nov 30 " " "	117	27.50			
" " " "	117	322.5			
" " " "	126	342.40			
dec 31 " " "	69	12.6			
" " " "	106	14.1			
" " " "	138	150.33			
" " " "	52	38			
dec 29 " " "	144	77.00			
" " " "	127	25.75			
mar 30 " " "	77	78.79			
apl 30 " " "	108	115			
" " " "	128	30			
" " " "	137	20.00			
" " " "	142	147.03			
may 31 " " "	66	66			
" " " "	140	2682.25			
June 29 " " "	70	54			
" " " "	106	27.00			
" " " "	130	37.25			
" " " "	144	65			
" " " "	142	393.04			
July 31 " " "	102	183.35			
aug 31 " " "	129	81.12			
sept 30 " " "	77	112.72			
" " " "	121	11.58			
Oct 31 " " "	140	260.00			
Nov 30 " " "	131	110			
1912	2884.47	1912	2884.47		
Aug 31 To Voucher	116	25	Aug 31 To M.H.I. Day	7952	25
Sept 30 " " "	116	170	" " " "	8115	175
Oct 30 " " "	21	700	" " " "	8274	700
Nov 30 " " "	700	700	" " " "	8400	700
Jan 31 To M.H.I. Day	700	700	" " " "	8500	700

Sheet No. 23Name
Address

Repairing on Red Studebaker

#2152

1910	1911	1911	1911	1911	1911
apl 30 To Voucher	116	293	July 28 To General Exp	185	2170.8
" " " "	117	156			
may 31 " " "	112	175			
" " " "	117	120			
" " " "	118	243			
June 30 " " "	119	14			
" " " "	125	15.5			
" " " "	86	35.00			
" " " "	92	32			
" " " "	91	9.88			
July 31 " " "	92	4.79			
" " " "	22	63.01			
" " " "	83	175			
" " " "	89	6.83			
" " " "	90	3.42			
aug 31 " " "	93	10.11			
" " " "	97	1.25			
" " " "	98	1.75			
sept 30 " " "	32	11.75			
" " " "	97	2.66			
" " " "	98	6.03			
Oct 31 " " "	93	22.7			
" " " "	93	15.14			
" " " "	94	1.63			
nov 30 " " "	41	82			
" " " "	126	150.33			
" " " "	128	40.5			
" " " "	129	8.10			
dec 31 " " "	33	2.5			
" " " "	33	17.50			
" " " "	117	88			
" " " "	117	17.65			
Jan 31 " " "	91	42.1			
" " " "	72	18.21			
Feb 28 " " "	91	2.50			
" " " "	106	20.66			
" " " "	100	2.00			
" " " "	103	40.00			
		2170.8			2170.8
mar 31 To Voucher	33	80.45			
" " " "	117	120			
" " " "	118	58			
apl 30 " " "	113	386			
" " " "	114	77.1			
may 31 " " "	106	60.75			
" " " "	115	8.77			
" " " "	116	60.75			
June 30 " " "	82	118.5			
" " " "	117	4.11			
" " " "	117	2.16			
July 31 " " "	51	69.48			
" " " "	105	14.45			
" " " "	110	4.75			
" " " "	111	9.03			
aug 31 " " "	35	22.24			
" " " "	11	6.45			
" " " "	11	5.00			
" " " "	120	5.23			
		2747.5			

Sheet No. _____

Name _____

Address _____

Reparations Red Studebaker

1915

Sept 30	Lumber	22	2026	Dec 31	By Capital Loss	322	2021
May 31	"	202	1876				
June 30	"	280	1878				
July 31	"	281	1878				
"	"	50	1878				
Aug 31	"	206	1878				
"	"	27	1878				
"	"	251	1878				
Sept 30	"	200	1878				
Oct 31	"	35	1878				
"	"	177	1878				
Nov 30	"	116	1878				
"	"	214	1878				
Dec 31	"	216	1878				
"	"	206	1878				
1916			2211				
Jan 31	Lumber	118	1878				
Feb 29	"	126	1878				
Mar 31	"	35	1878				
"	"	119	1878				
Apr 30	"	46	1878				
May 31	"	135	1878				
June 30	"	108	1878				
July 31	"	41	1878				
"	"	122	1878				

Sheet No. 30

Name _____

Address _____

Reparations Supplies J. Balcock Electric #2430

includes to be charged with labor only

1911				1911			
May 31	To Voucher	115	2734	May 31	By E. Nicolai Ins	4142	2738
June 30	"	117	2734	June 30	"	4326	2738
"	"	117	2734	June 30	"	4646	2738
July 31	"	118	2734	July 30	"	4788	2738
Aug 31	"	111	2734	Aug 30	"	4777	2738
"	"	119	2734	Sept 30	"	4777	2738
Sept 30	"	130	2734	Sept 30	"	4777	2738
"	"	108	2734	Oct 30	"	4777	2738
"	"	110	2734	Nov 30	"	4777	2738
Oct 31	"	112	2734	Dec 31	"	4777	2738
Nov 30	"	117	2734				
"	"	119	2734				
Dec 30	"	122	2734				
Dec 31	"	144	2734				
Mar 30	"	60	2734				
"	"	127	2734				
Apr 30	"	142	2734				
May 31	"	99	2734				
"	"	64	2734				
June 30	"	100	2734				
"	"	96	2734				
July 31	"	145	2734				
"	"	3	2734				
Aug 31	"	64	2734				
Sept 30	"	115	2734				
Oct 31	"	82	2734				
Nov 30	"	115	2734				
Dec 31	"	142	2734				
Jan 31	"	9	2734				
"	"	31	2734				
"	"	44	2734				
"	"	67	2734				
"	"	108	2734				
"	"	123	2734				
Sept 30	"	129	2734				
Oct 31	"	118	2734				
"	"	121	2734				
Nov 30	"	60	2734				
"	"	149	2734				
Dec 31	"	121	2734				
Jan 31	"	155	2734				
Feb 28	"	155	2734				
Mar 31	"	124	2734				
Apr 30	"	120	2734				
May 31	"	110	2734				
June 30	"	112	2734				
July 31	"	129	2734				
Aug 30	"	116	2734				
1912							
Mar 31	To Voucher	120	2734	Dec 31	By General Expense	2084	1653
Apr 30	"	110	2734				
May 31	"	112	2734				
June 30	"	129	2734				
July 31	"	116	2734				
Aug 30	"	116	2734				

Sheet No. _____

Name _____
Address _____Sheet No. 31Name _____
Address _____Repairs & Supplies $\frac{1}{2}$ Hutchinson Ave
#2-485

1911			1911				
June 30	To Voucher	117	172	June 30	By Hutch. Inv.	4325	259
" " " "	" " " "	35	" " " "	" " " "	" " " "	4492	168
July 31	" " " "	110	" " " "	" " " "	" " " "	4645	253
aug 31	Invoice	111	" " " "	" " " "	" " " "	4664	65
" " " "	Voucher	119	" " " "	" " " "	" " " "	4784	34
" " " "	" " " "	120	" " " "	" " " "	" " " "	4944	65
" " " "	" " " "	121	" " " "	" " " "	" " " "	5235	65
sept 30	" " " "	108	" " " "	" " " "	" " " "	5272	45
" " " "	" " " "	109	" " " "	" " " "	" " " "	5285	29
oct 31	" " " "	112	" " " "	" " " "	" " " "	5855	29
" " " "	" " " "	113	" " " "	" " " "	" " " "	5855	29
jan 31	" " " "	59	" " " "	" " " "	" " " "	5964	65
" " " "	" " " "	138	" " " "	" " " "	" " " "	6113	15
Feb 29	" " " "	24	" " " "	" " " "	" " " "	6256	125
" " " "	" " " "	33	" " " "	" " " "	" " " "		507
" " " "	" " " "	69	" " " "	" " " "	" " " "		
" " " "	" " " "	71	" " " "	" " " "	" " " "		
" " " "	" " " "	60	" " " "	" " " "	" " " "		
" " " "	" " " "	102	" " " "	" " " "	" " " "		
" " " "	" " " "	118	" " " "	" " " "	" " " "		
" " " "	" " " "	133	" " " "	" " " "	" " " "		
" " " "	" " " "	142	" " " "	" " " "	" " " "		
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Mar 30	" " " "	21	" " " "	" " " "	" " " "		
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May 31	" " " "	21	" " " "	" " " "	" " " "		
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June 29	" " " "	13	" " " "	" " " "	" " " "		
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July 31	" " " "	145	" " " "	" " " "	" " " "		
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aug 31	" " " "	31	" " " "	" " " "	" " " "		
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" " " "	" " " "	63	" " " "	" " " "	" " " "		

Name
Address

Repairs & Supplies to Hutchinsons Auto
2485

1912			104,927	1912		135,877
aug. 31	20	102	1200	aug. 31	20	135,877
" " "	"	129	3735	" " "	"	6401
Sept 30	"	121	11,527	" " "	"	6485
Oct 31	"	88	20	" " "	"	6485
" " "	"	97	40	" " "	"	6485
" " "	"	108	357	" " "	"	6485
" " "	"	107	13	" " "	"	6485
Nov 30	"	39	11,247	" " "	"	6485
" " "	"	83	169	" " "	"	6485
" " "	"	124	54	" " "	"	6485
Dec 31	"	16	267	" " "	"	6485
" " "	"	80	54	" " "	"	6485
" " "	"	137	35	" " "	"	6485
" " "	"	104	30	" " "	"	6485
1913			143,181			143,181
Janv. 31	"	84	18			143,181
" " "	"	155	1634			143,181
Feb. 28	"	36	67			143,181
" " "	"	39	265			143,181
" " "	"	69	251			143,181
" " "	"	73	2700			143,181
" " "	"	91	215			143,181
" " "	"	124	5404			143,181
			21,888			21,888
			171,900			171,900

Mar 31	2.	Under	29	170	Mar 31	By A.R. Hutschmidt	790.	5858
"	"	"	41	275	Apr 30	"	"	7625
"	"	"	61	31	May 31	"	"	7920
"	"	"	93	8	June 30	"	"	7690
"	"	"	107	14	July 31	"	"	7818
"	"	"	118	20	Aug 31	"	"	7932
			120	50				6630
Apr 30	"	"	34	165				
"	"	"	63	418				
"	"	"	102	168				
"	"	"	137	60				
"	"	"	140	108				
May 31	"	"	96	30				
"	"	"	117	128				
June 30	"	"	40	207				
"	"	"	48	211				
"	"	"	41	50				
"	"	"	67	200				
"	"	"	68	140				
"	"	"	77	79				
"	"	"	80	10				
"	"	"	110	50				
"	"	"	118	239				
"	"	"	128	141				
July 31	"	"	129	207				
"	"	"	146	148				
"	"	"	176	54				

Name .
Address

Repairs & Supplies to Hutchinsons Auto. #2485

1893		1894	
Sept 30	2	27	2520
"	"	29	352
"	"	30	36
"	"	65	170
"	"	94	115
"	"	109	1879
Sept 30	By M. B. Hutchinson	850.1	12058

Name
Address

Name
Address

Recording Machines for Disc Records
2496

[illegible]

Sheet No. 32

Name
Address

Recording Machines for Data Records #2496

1911	July 31	126	283658	1912	July 31	1702	357694
apl 30	128	245	May 31	By voucher	5707	357694	
" " "	126	70	July 29	" " "	6044	357694	
" " "	142	43527	July 31	" " "	6195	357694	
May 31	99	105	Aug 31	" " "	6340	357694	
" " "	122	30	Sept 30	" " "	6486	357694	
" " "	137	30	Oct 31	" " "	6626	357694	
" " "	140	3878	Nov 30	" " "	6735	357694	
June 29	22	1275	Dec 31	" " "	6847	357694	
" " "	40	1427	Jan 31	" " "	6966	357694	
July 31	145	1427	Feb 28	" " "	7094	357694	
" " "	146	32638	" " "	" " "	7094	357694	
" " "	141	245	" " "	" " "	7094	357694	
" " "	142	3346	" " "	" " "	7094	357694	
Aug 31	25	19524	" " "	" " "	7094	357694	
" " "	123	85	" " "	" " "	7094	357694	
" " "	124	6559	" " "	" " "	7094	357694	
Sept 30	36	975	" " "	" " "	7094	357694	
" " "	109	80	" " "	" " "	7094	357694	
" " "	121	32638	" " "	" " "	7094	357694	
Oct 31	119	600	" " "	" " "	7094	357694	
Nov 30	124	3468	" " "	" " "	7094	357694	
Dec 31	155	3417	" " "	" " "	7094	357694	
Jan 31	155	721	" " "	" " "	7094	357694	
Feb 28	124	1427	" " "	" " "	7094	357694	
		1427					

Mar 31 To Voucher 39 82 Mar 31 By Voucher 7245 82

Sheet No. 33

Name
Address

Repairs etc on "Anderson Electric" #2539

1911	July 31	75	528	1911	July 31	26	4450
Aug 31	35	8353	By voucher	26	6	3500	
Sept 30	56	8740	" " "	" " "	230	26153	
" " "	59	807	" " "	" " "	" " "	" " "	
" " "	59	807	" " "	" " "	" " "	" " "	
Oct 31	50	10515	" " "	" " "	" " "	" " "	
" " "	78	21	" " "	" " "	" " "	" " "	
" " "	108	70	" " "	" " "	" " "	" " "	
" " "	112	1478	" " "	" " "	" " "	" " "	
" " "	115	108	" " "	" " "	" " "	" " "	
Nov 30	3	1541	" " "	" " "	" " "	" " "	
" " "	60	180	" " "	" " "	" " "	" " "	
" " "	88	230	" " "	" " "	" " "	" " "	
" " "	113	30	" " "	" " "	" " "	" " "	
" " "	117	620	" " "	" " "	" " "	" " "	
Dec 31	119	632	" " "	" " "	" " "	" " "	
" " "	84	20	" " "	" " "	" " "	" " "	
" " "	111	35	" " "	" " "	" " "	" " "	
1912	Feb 29	124	32920	" " "	" " "	" " "	
" " "	144	108	" " "	" " "	" " "	" " "	
		2105					
1912	Mar 31	126	21	1912	July 31	263	11007
" " "	127	666	" " "	" " "	" " "	" " "	
" " "	142	27	" " "	" " "	" " "	" " "	
Apr 30	46	266	" " "	" " "	" " "	" " "	
May 31	140	1033	" " "	" " "	" " "	" " "	
" " "	43	151	" " "	" " "	" " "	" " "	
June 29	145	742	" " "	" " "	" " "	" " "	
" " "	139	275	" " "	" " "	" " "	" " "	
July 31	142	212	" " "	" " "	" " "	" " "	
" " "	58	980	" " "	" " "	" " "	" " "	
Aug 31	42	279	" " "	" " "	" " "	" " "	
" " "	127	604	" " "	" " "	" " "	" " "	
Sept 30	72	50	" " "	" " "	" " "	" " "	
" " "	21	376	" " "	" " "	" " "	" " "	
Oct 31	51	1300	" " "	" " "	" " "	" " "	
" " "	53	2416	" " "	" " "	" " "	" " "	
" " "	149	147	" " "	" " "	" " "	" " "	
Nov 30	124	147	" " "	" " "	" " "	" " "	
Dec 31	35	8109	" " "	" " "	" " "	" " "	
" " "	155	3384	" " "	" " "	" " "	" " "	
Jan 31	145	1033	" " "	" " "	" " "	" " "	
Feb 28	126	1033	" " "	" " "	" " "	" " "	

Mar 31 To Voucher 22 11007
 " " " 118 207
 " " " 120 1147
 Apr 30 " " 9 800
 " " 27 1260
 " " 37 828
 " " 41 131
 " " 77 1069

Sheet No. _____

Name _____
Address _____

Repairs etc on Anderson Electric

#2539

1895																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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Sheet No. _____

Name ...
Address

Repairs etc on Anderson Electric

2639

[illegible]

Address

Address

Repairs Etc of Simplex auto #2681

[illegible]

Sheet No. _____

Name _____

Address _____

Repairs etc. to Simplex Auto.
12611

1929			1930			1931			1932		
Jan 31	Dring & Howard	105	797.77	Jan 31	Dring & Howard	95	753.74				
Feb 28	"	131	120	Oct 31	"	95	759.79				
Mar 31	"	184	79	Dec 31	By Capital & Loans	126.11	1276.73				
"	"	21	50.29								
"	"	62	28.76								
"	"	66	2.07								
"	"	67	9.08								
"	"	83	39.11								
"	"	80	19.01								
"	"	89	2.79								
"	"	92	99								
"	"	96	138								
Apr 30	"	106	389.09								
"	"	37	3.78								
"	"	66	18								
"	"	67	6.91								
"	"	75	730								
"	"	73	500								
"	"	71	50								
"	"	116	85.00								
May 31	"	103	115.00								
"	"	115	22.50								
June 30	"	90	115.50								
"	"	106	5.73								
July 31	"	9	282.88								
Sept 30	"	66	10								
"	"	79	65.50								
Oct 31	"	95	123.73								
"	"	110	12								
"	"	113	250								
"	"	115	114.81								
Nov 30	"	109	11.00								
"	"	90	15.99								
Dec 31	"	136	115.00								
1930			2442.77								
Jan 31	Donner	188	46								
Feb 28	"	87	62.00								
Mar 31	"	84	149.03								
Apr 30	"	81	136.8								
May 31	"	85	31.8								
"	"	93	30								
"	"	94	86.46								
"	"	48	2.44								
"	"	50	2.11								
"	"	62	48								
"	"	68	260								
"	"	99	88								
"	"	101	314.00								
"	"	132	32.00								
"	"	135	40								
"	"	152	31.2								
"	"	156	8.32								
"	"	156	750.44								
"	"	70									

726.5776

Sheet No. _____

Name _____

Address _____

Repairs etc. to Simplex Auto.
12611

1930			1931			1932			1933		
June 30	Donner	14	110	Dec 31	By Capital & Loans	32.73	1172.79				
"	"	19	110.00								
"	"	125	8.77								
"	"	143	8.76								
July 31	"	221	40.78								
Sept 30	"	93	1.1								
"	"	104	29.98								
"	"	92	1.1								
"	"	144	2.65								
"	"	197	12.00								
"	"	200	2.00								
Oct 31	"	91	11.13								
"	"	92	1.20								
"	"	109	10.20								
Nov 30	"	127	11.13								
"	"	20	2.00								
"	"	105	7.22								
Dec 31	"	212	11.79								
"	"	926	11.79								
1931			37								
Jan 31	Donner	37	10.00								
"	"	57	1.22								
"	"	148	2.67								
Feb 28	"	20	2.00								
"	"	126	2.46								
Mar 31	"	107	3.00								
May 31	"	10	3.33								
"	"	112	19.10								
"	"	114	2.07								
"	"	122	3.00								
June 31	"	125	1.63								
"	"	11	3.44								
"	"	100	2.75								

1930
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1911		1912		1913			
Mar 30	20 vancouver	70	Mar 30	ap 20 E. and S. W.	5584	120 53	
Apr 30	" "	127	11 88	ap 30	" "	5734	
"	" "	128	500	June 31	" "	5794	
"	" "	148	31 78	July 31	" "	6071	
May 31	" "	6	31 78	Aug 31	" "	6217	
"	" "	48	15 79	Sept 30	" "	6264	
"	" "	60	124	Oct 28	" "	6204	
"	" "	58	81			7113	
"	" "	97	2.00				
"	" "	99	10				
"	" "	102	765				
"	" "	103	671				
"	" "	121	2.44				
"	" "	138	50				
"	" "	140	477.31				
June 29	" "	9	532				
"	" "	10	43				
"	" "	24	05				
"	" "	91	76				
"	" "	98	3.0				
"	" "	109	561				
"	" "	124	376				
"	" "	132	4.75				
"	" "	143	50				
July 31	" "	145	4.00 58				
"	" "	200	6.70				
"	" "	22	2.74				
"	" "	141	150				
"	" "	142	200.48				
Aug 31	" "	129	181.36				
Sept 30	" "	141	274.73				
Oct 28	" "	141	341.78				
1916		39					
Aug 31	20 Vancouver	322	150	Oct 31	20 E. and S. W.	7900	4125
		79	118	Oct 31	" "	8127	67
		116	465.7				
Oct 31		636	487				

Sheet No. _____

Name _____

Address _____

Sheet No. 43

Name _____

Address _____

Records (Cylinder) \$ 291.4
 Year Ending Feb. 28, 1913

1912			1912			1912			
Mar 30	To Voucher	127	78.44	Mar 30	By J. A. E. Inc. Inv	5577	78.44		
Apr 30	" "	108	90	Apr 30	" " "	5737	414.0		
June 30	" "	145	40.50	June 30	" " "	6074	125.54		
July 31	" "	83	27.77	July 31	" " "	8221	48.65		
Sept 30	" "	142	49.54	Sept 30	" " "	8707	5.28		
Oct 31	" "	73	19.01	Oct 31	" " "	6613	23.52		
Nov 30	" "	84	2.50	Nov 30	" " "	6521	23.54		
Dec 31	" "	118	25	Dec 31	" " "	6847	11.64		
Jan 31	" "	121	34.61	Jan 31	" " "	7117	12.53		
Feb 28	" "	129	29.43	Feb 28	" " "		2.02		
Mar 30	" "	30	25						
Apr 30	" "	23	50						
May 30	" "	124	23.41						
June 30	" "	38	60						
July 31	" "	116	76						
Aug 31	" "	49	50						
Sept 30	" "	158	3.12						
Oct 31	" "	104	7.00						
Nov 30	" "	152	94						
Dec 31	" "	155	128.68						
Jan 31	" "	124	28.02						
Feb 28	" "		1291.40						
Mar 31	To Voucher	120	138.3	Mar 31	By J. A. E. Inc. Inv	7163	138.3		
Apr 30	" "	110	62	Apr 30	" " "	7389	65		
May 31	" "	108	1550	May 31	" " "	9510	60.96		
June 30	" "	127	30	June 30	" " "	9676	137.03		
July 31	" "	142	44.61	July 31	" " "	7799	26.77		
Aug 31	" "	120	52.73	Aug 31	" " "	7993	59.66		
Sept 30	" "	43	32	Sept 30	" " "	1015	22.30		
Oct 31	" "	129	26.48	Oct 31	" " "	8130	35.44		
Nov 30	" "	116	59.66	Nov 30	" " "	8352	16.16		
Dec 31	" "	134	1	Dec 31	" " "	8394	30.54		
Jan 31	" "	30	22	Jan 31	" " "	8458	16.24		
Feb 28	" "	109	28.84	Feb 28	" " "	8521	18.42		
Mar 31	" "	155	85.42	Mar 31	" " "	8641	23		
Apr 30	" "	100	170	Apr 30	" " "	8693	258.56		
May 31	" "	144	167.41	May 31	" " "	8779	31.54		
June 30	" "	2	11.14	June 30	" " "		153.98		
July 31	" "	55	30						
Aug 31	" "	127	150						
Sept 30	" "	154	412						
Oct 31	" "	156	183.70						
Nov 30	" "	160	7.77						
Dec 31	" "	108	142						
Jan 31	" "	127	159.00						
Feb 28	" "	30	33						
Mar 31	" "	112	23						
Apr 30	" "	134	181.79						
May 31	" "	82	570						
June 30	" "	92	62						
July 31	" "	166	252.69						
Aug 31	" "	4	22.0						
Sept 30	" "	11	10.33						

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Repairs & Supplies to Automobile

1921

1921

Aug 30	Amount Paid	179
Sept 30	"	79
Oct 31	"	70
Nov 30	"	70
Dec 31	"	99
Jan 31	"	16
Feb 28	"	115
Mar 31	"	109
Apr 30	"	152
May 31	"	130
Jun 30	"	147
Jul 31	"	171

1921

Aug 30	Amount Paid	179
Sept 30	"	79
Oct 31	"	70
Nov 30	"	70
Dec 31	"	99
Jan 31	"	16
Feb 28	"	115
Mar 31	"	109
Apr 30	"	152
May 31	"	130
Jun 30	"	147
Jul 31	"	171

1921

Aug 30	Amount Paid	179
Sept 30	"	79
Oct 31	"	70
Nov 30	"	70
Dec 31	"	99
Jan 31	"	16
Feb 28	"	115
Mar 31	"	109
Apr 30	"	152
May 31	"	130
Jun 30	"	147
Jul 31	"	171

Sheet No. _____

Name
Address

Sheet No. _____

Name
AddressRepairs & Supplies for Ford Auto
#8118

1941		1942	
Apr 30	December	252	1,018
May 31	"	293	559
June 30	"	251	918
July 31	"	206	821
Aug 31	"	221	1311
Sept 30	"	200	1622
Oct 31	"	177	1458
Nov 30	"	212	1760
Dec 31	"	226	1441
Jan 31	"	185	2314
Feb 29	"	176	2123
Mar 31	"	119	2083
Apr 30	"	94	2157
May 31	"	135	2285
June 30	"	9	500
July 31	"	101	2015
		132	1778

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Sheet No. _____

Name _____
Address _____

Sheet No. _____

Name _____
Address _____Repairs & Supplies for Ford Auto
1901

46

1900		1901		
Apr 30	Lumber	113	Apr 30 McDonald's Inc	113
May 31	"	48	Apr 30 "	1229
"	"	293	Apr 30 "	1070
June 30	"	251	Apr 30 "	1070
July 31	"	256	Apr 30 "	1070
Aug 31	"	27	Apr 30 "	1070
"	"	221	Apr 30 "	1070
Sept 30	"	195	Apr 30 "	1070
"	"	181	Apr 30 "	1070
"	"	200	Apr 30 "	1070
Oct 31	"	149	Apr 30 "	1070
"	"	112	Apr 30 "	1070
Nov 30	"	226	Apr 30 "	1070
Dec 31	"	118	Apr 30 "	1070
Jan 31	"	126	Apr 30 "	1070
Feb 29	"	119	Apr 30 "	1070
Mar 31	"	46	Apr 30 "	1070
Apr 30	"	48	Apr 30 "	1070
May 31	"	135	Apr 30 "	1070
June 30	"	101	Apr 30 "	1070
July 31	"	125	Apr 30 "	1070

2000-1901-1902-1903-1904-1905-1906-1907-1908-1909-1910-1911-1912-1913-1914-1915-1916-1917-1918-1919-1920-1921-1922-1923-1924-1925-1926-1927-1928-1929-1930-1931-1932-1933-1934-1935-1936-1937-1938-1939-1940-1941-1942-1943-1944-1945-1946-1947-1948-1949-1950-1951-1952-1953-1954-1955-1956-1957-1958-1959-1960-1961-1962-1963-1964-1965-1966-1967-1968-1969-1970-1971-1972-1973-1974-1975-1976-1977-1978-1979-1980-1981-1982-1983-1984-1985-1986-1987-1988-1989-1990-1991-1992-1993-1994-1995-1996-1997-1998-1999-2000

Name ..
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Address...

Recital & Demonstration Work

147

		1912-1913	1913-1914	1914-1915
June 30	Balance	21	127	1113
	Revenue	22	1000	1113
	"	63	1735	1015
	"	159	10	1015
	"	184	101	1015
	"	161	54	1015
	"	251	77	1015
July 31	"	93	1263	1015
	"	153	77	1015
	"	256	25	1015
Aug 31	"	31	199	1015
	"	113	61	1015
	"	229	276	1015
Sept 30	"	27	1015	1015
	"	260	276	1015
Oct 31	"	5	31	1015
	"	27	31	1015
	"	47	199	1015
	"	151	61	1015
	"	199	276	1015
Nov 30	"	101	1015	1015
	"	161	51	1015
	"	217	276	1015
Dec 31	"	1	92	1015
	"	51	1015	1015
1914	"	226	3000	1015
Jan 31	"	11	99	1015
	"	43	351	1015
	"	101	61	1015
	"	148	111	1015
Feb 29	"	31	1015	1015
	"	27	5	1015
	"	96	250	1015
	"	117	50	1015
	"	126	3000	1015
Mar 31	"	1	87	1015
	"	119	276	1015
Apr 30	"	21	27	1015
	"	73	1015	1015
	"	96	240	1015
May 31	"	121	3000	1015
June 30	"	26	116	1015
	"	76	50	1015
	"	101	241	1015
July 31	"	90	15	1015
	"	117	1015	1015
	"	127	240	1015
	"	137	1015	1015

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Repaired & Replacement of Machinery & Tools (Chand Dair)
139.86

1911		1912		1913		1914		1915	
Sept 30	Chamber	200	37.8	Sept 30	Al. Edwin Thord	10.16	37.8		
Oct 31	"	511	11.60	Oct 31	"	10.48	350.9		
"	"	70	60	Nov 30	"	10.66	179.1		
"	"	90	69.1	Dec 31	"	10.72	61.14		
"	"	177	53.9	Jan 31	"	10.52	91.87		
Nov 30	"	18	20.9	Feb 29	"	10.31	244.07		
"	"	135	6.11	Mar 31	"	11.22	350.5		
"	"	211	50	Apr 30	"	11.02	350.5		
"	"	217	6.11						
Dec 31	"	50	3.04						
"	"	220	11						
"	"	226	57.87						
Jan 31	"	39	25						
"	"	111	33.6						
"	"	90	3.5						
"	"	100	20.8						
"	"	127	2.27						
"	"	120	5.11						
"	"	148	26.02						
Feb 29	"	30	19.01						
"	"	53	6.109						
"	"	82	12.3						
"	"	107	4.18						
"	"	126	17.91						
Mar 31	"	119	14.95						
June 30	"	161	14.95						

This account was audited and found correct on June 30, 1915, by the Board of Directors of the Chand Dair.

Address

Name _____

Address _____

Repairson Machinery for Diesel Record Mfg. Div.
2-4-18

[illegible]

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Reparation Reduction Other Award
44115

1941		1942		1943		1944		1945	
Mar 10	119	Mar 10	119	Mar 10	119	Mar 10	119	Mar 10	119
Apr 30	92	Apr 30	92	Apr 30	92	Apr 30	92	Apr 30	92
May 31	185	May 31	185	May 31	185	May 31	185	May 31	185

Sheet No. _____

Name _____
Address _____

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Address _____

Repairs & Supplies for Buick Auto
1912-13

51

1912

Mar 31	December	16	902
Apr 30	"	119	755
May 31	"	196	565
June 30	"	125	1170
July 31	"	76	580
		76	100
		108	1100
July 31	"	96	590
		125	1200
			1200

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Name _____

Address _____

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Name _____

Address _____

Spence Lumber Co. S. Edgar, S. Edgar
111128

1911				1912			
Mar. 31	Lumber	119	111128	Mar. 31	111128	111128	111128
Apr. 31	"	121	111128	Apr. 31	"	111128	111128
May 31	"	123	111128	May 31	"	111128	111128
Jun. 30	"	105	111128	Jun. 30	"	111128	111128
July 31	"	122	111128	July 31	"	111128	111128

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Address _____

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Name _____
Address _____

Repairs & Supplies to Capt. Elmer Ford's
U.S. 1166

1916

<i>Apr 30</i>	<i>Voucher</i>	67	7.50	<i>Apr 29</i>	<i>E. C. Ford</i>	<i>11201</i>	17.49
	"	94	3.90	<i>May 31</i>	"	"	13.65
<i>May 31</i>	"	131	13.50	<i>June 30</i>	"	"	36.92
<i>June 30</i>	"	38	10.30	<i>July 31</i>	"	"	18.85
	"	76	6.80				
	"	105	15.00				
<i>July 31</i>	"	132	4.65				
			6.15				

17192

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Name ..
Address ..

Resin & Beechway Preparation 1333.0

3330

<p>177 APR 30 To Balance 1450 May 31 1147 3500</p>	<p>178 APR 30 By 1000 Income 4500 May 31 7520 3500</p>
---	---

Repairs on L. & L. S. Reduction Pottery Coopers
1913 1334

1913		1914		1915		1916		1917	
April 30	To Balance	140.		315	Apr 30 To Cash	7011		315.	
May 31	"	148		1331	May 31	"	7320	6340	
June 30	"	129		1651	June 30	To Cash	7679	1678	
July 31	"	"	116	2578	July 31	"	7720	2578	
Sept 30	"	"	109	1961	Sept 30	"	8035	1961	
Oct 31	"	"	104	1100	Oct 31	"	8146	1100	
Nov 30	"	"	104	1096	Nov 30	"	8249	1096	
Jan 31	"	"	127	2673	Jan 31	"	8279	1093	
Mar 31	"	"	126	6761	Mar 31	"	8717	6842	
April 30	"	"	116	2707	Apr 30	"	8816	2257	
May 31	"	"	116	1458	May 31	"	8917	1456	
June 30	"	"	106	3205	June 30	"	9007	3205	
July 31	"	"	90	2167	July 31	"	9214	2167	
Sept 30	"	"	95	7903	Sept 30	"	9370	2903	
Oct 31	"	"	115	2126	Oct 31	"	9426	2126	
Nov 31	"	"	105	2670	Nov 31	"	9575	2670	
Dec 31	"	"	107	2647	Dec 31	"	9745	2647	
Jan 31	"	"	181	963	Jan 31	"	9816	765	
Feb 31	"	"	252	1313	Feb 31	"	9945	1313	
Mar 31	"	"	351	1094	Mar 31	"	10111	1094	
Apr 31	"	"	276	1183	Apr 31	"	10003	1183	
May 31	"	"	211	1453	May 31	"	10957	1453	
June 31	"	"	148	5158	June 31	"	10932	5158	
July 31	"	"	126	7167	July 31	"	10932	7167	

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Name _____
Address _____

Repair Pattern for Molding Carriage #3373

#3373

1914		1915		1916	
May 31 To Balance	184	730 May 31 To R.S. B. Co. Dr.	718	130	
July 30 " "	175	249 July 30 " " "	7609	249	

Repair Patterns on Iron Loading Machines

1913		1913		1913	
Repair Sattens on Wood		Reading Machine		1913	
May 31 To Voucher 1114		1110 May 31 By E. B. Borden 7115		1110	
June 30 " " 128		06 June 30 " " 7613		06	

Sheet No. _____

Name _____

Address _____

Repair Desk #3357

1913

June 30. To Lumber 125
July 31. " " 129

1913

June 30. By Ed B. B. Lumber 7617
July 31. " " " 7762

798
854

Sheet No. _____

Name _____

Address _____

Repair One Rectifier Exhibit Table #3591

1913

Jan 31. Lumber 127

1914

Jan 31. By Ed B. B. Lumber 8574

120

1913

June 30. To Lumber 125

1913

June 30. By Ed B. B. Lumber 7617

222

1914

Jan 31. Lumber 127

Repairs or Make One Each Cell #1-2-3-4-5

Jan 31. By Ed B. B. Lumber 8574

350

Repair on Pattern #1575⁶
#3669

1914

Jan. 31. Lumber 179

1914

Jan. 31. Edmund B. L. Inc. 1168

180

1914

Mar. 31. Lumber 106

Repair Culverized Mat. #3633

Mar. 31. J. D. & Son Inc. 8709

5028

Repairing Rear Bunk & Screens at Hayes
#3660

1914

Apr. 30. Lumber 74

25

Apr. 30. Mrs. J. D. Edmundson 8827

8069

May 31

90

2708

May 31

8827

8069

116

4334

107

147

115

10760

1914

Sept. 30. Lumber 66

Recital & Demonstration Party

1914

Sept. 30. J. D. Edmundson 8827

8069

Oct 31

90

4334

Oct 31

8827

8069

108

147

107

10760

Nov. 30

111

113

Nov. 30

8827

8069

113

107

115

10760

Dec. 31

106

107

Dec. 31

8827

8069

109

10760

Jan. 31

120

139

Jan. 31

8827

8069

150

10

Feb. 28

152

179

Feb. 28

8827

8069

156

1600

Mar. 31

158

33975

Mar. 31

8827

8069

147

30518

Apr. 30

151

31009

Apr. 30

8827

8069

94

50

May 31

152

31300

May 31

8827

8069

151

109

293

10760

Sheet No. _____

Name _____

Address

Repaired Dec. 13876

1907		1908		1909		1910		1911		1912		1913		1914		1915		1916		1917		1918		1919		1920		1921		1922		1923		1924		1925		1926		1927		1928		1929		1930		1931		1932		1933		1934		1935		1936		1937		1938		1939		1940		1941		1942		1943		1944		1945		1946		1947		1948		1949		1950		1951		1952		1953		1954		1955		1956		1957		1958		1959		1960		1961		1962		1963		1964		1965		1966		1967		1968		1969		1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981		1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993		1994		1995		1996		1997		1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023		2024		2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035		2036		2037		2038		2039		2040		2041		2042		2043		2044		2045		2046		2047		2048		2049		2050		2051		2052		2053		2054		2055		2056		2057		2058		2059		2060		2061		2062		2063		2064		2065		2066		2067		2068		2069		2070		2071		2072		2073		2074		2075		2076		2077		2078		2079		2080		2081		2082		2083		2084		2085		2086		2087		2088		2089		2090		2091		2092		2093		2094		2095		2096		2097		2098		2099		2100	
1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061																																																																																																																																																																																																																																									

1915

1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367
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1918	Apr. 30	Lumber	726	Apr. 30	30 th Hoig. Lumber	726
	May 31	"	743	May 31	"	1300
	June 30	"	751	June 30	"	1017

Sheet No. _____

Name _____

Address

Repaired as Patches
Harc. County, Ohio

[illegible]

Reconstruct Edison Motion Picture Signature

1914		1915		1916	
Dec. 31	Laurel	712	1870	Dec. 31	Laurel
Dec. 31	"	726	3417	Jan. 31	"
May 31	"	148	50.10	Jun. 31	"
Oct. 29	"	126	68.10	Oct. 29	"

Sheet No. _____

Name _____
Address _____

Repairs to Alberger's Pump & Engine

1914		1915		1916	
July 29. Lumber	176	329	July 29. Edmund Wilson Hts 10789	327	
Nov. 30. "	91	500	Apr. 29. " " " 11203	500	
May 31. "	135	509	May 31. " " " 11350	509	

1916		1917		
July 29. Lumber	176	329	July 29. Edmund Wilson Hts 10789	327

Relining Brake Pumps

Sheet No. _____

Name _____
Address _____

Repairs to Machinery for Duck Pond Mill & etc.

1915		1916		1917	
Nov. 30. Lumber	20	110	Nov. 30. Edmund Wilson Hts 10789	13720	
" "	103	131	Apr. 31. " " 10789	67160	
" "	107	117	May 31. " " 10807	67160	
Dec. 31. "	107	133			
" "	1	36			
" "	5	60			
" "	17	1700			
" "	27	198			
" "	46	22			
" "	56	60			
" "	87	71			
" "	111	1714			
" "	111	165			
" "	131	361			
" "	132	71			
" "	111	700			
" "	131	720			
" "	200	471			
" "	225	50			
" "	226	4133			
Jan. 31. "	14	200			
" "	39	504			
" "	5	333			
" "	58	3100			
" "	135	225			
" "	158	225			

Repairs to Machinery for Duck Pond Mill & etc.

1916		1917		1918		1919	
		Repairs & Replacements of Machinery & Equipment		Repairs & Replacements of Machinery & Equipment		Repairs & Replacements of Machinery & Equipment	
Jan. 31	Lumber	39	20	Jan. 31	Chandel St. 10789	10789	25979
"	"	86	260	Feb. 29	" " 10722	10722	92
"	"	90	217				
"	"	100	20				
"	"	130	26				
		148	263				
Feb. 29	"	30	4179				

Sheet No.

Name
AddressRepair & Return of Peter Penick's Oiling Pads
4454

July 31 Voucher 134	135	July 31 Bin Rec. May 24 11744	135
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Repair & Return of Three Crapping Machines
4455

July 31 Voucher 131	132	July 31 Bin Rec. May 24 11745	132
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Sheet No.

Name
AddressRepair & Return of John Pumps
4456

July 31 Voucher 134	135	July 31 Bin Rec. May 24 11746	135
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Repair & Return of Microscope
4456

July 31 Voucher 134	135	July 31 Bin Rec. May 24 11747	135
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Sheet No.

Name

Address

Repair Marine Drive for Pierre Pabla

1231

1911

July 31 Voucher	102	1135 Jan 31	11178	1138
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Repaid & Refused Landed & By Race Checked

July 31 Voucher	132	108 Jan 31	11178	1138
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Sheet No. 102

Name

Address

Repair Steam Pump # 2253

1911	1911		
Feb 28 To Voucher	102	632 Feb 28	By E. L. W. Long 3444
" " " "	103	1263 Mar 31	" " " 3613
" " " "	104	23	
Mar 31 " " "	116	168	
" " " "	117	1651	
" " " "	118	1652	
		1653	
		1654	
		1655	
		1656	
			1656

Charles Reis Loan for

1911	1911		
Feb 28 To Voucher	104	01 Feb 28	By L. M. Long 3547
Mar 31 " " "	117	120 Mar 31	" " " 120
Apr 31 " " "	118	41 Apr 31	" " " 4657
Jan 31 " " "	155	7026 Jan 31	" " " 7026
		1656	
Apr 31 " " "	159	29 Apr 31	By L. M. Long 2118
Apr 31 " " "	116	20 Apr 31	" " " 20

Rail for Reduction Insurance # 2258

1911	1911		
Mar 31 To Voucher	117	2970 Mar 31	By E. L. W. Long 3670
" " " "	118	1655	
		1656	
			1655

Sheet No. 103Name
Address

Repairing sprockets # 2326

1911		1911	
Mar 31 To Voucher	117	Mar 31 By J.A.B.G. Inc 2726	543
" " " "	118		281
			543

Repairing Pattens # 296 + # 1618 # 2365

1911		1911	
apl 30 To Voucher	113	apl 30 By E.B.G. Inc 3527	207
" " " "	114		163
			207

Repair Pattens for Drilling & Grinding Machines # 2381

1911		1911	
apl 20 To Voucher	113	apl 30 By E.B.G. Inc 2381	1628
" " " "	114	May 31 " " " 4023	718
May 31 " " "	115		1646
" " " "	116		73
			1646

Sheet No. 112Name
Address

Making Rong & Pattern # 3112

1912		1912	
Oct 21 To Voucher	119	Oct 21 By E.B.G. Inc 1112	2410

Rong & Pattern # 3128

1912		1912	
Oct 21 To Voucher	119	Oct 21 By E.B.G. Inc 1112	2410

Rong & Pattern # 3131

1912		1912	
Oct 21 To Voucher	119	Oct 21 By E.B.G. Inc 1112	2410

Sheet No. _____

Name _____

Address _____

Rough Pattern #3129

1912	Nov 30	To Voucher	121	1912	Nov 30	To By Elder's Lm	492	3299
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Rough Pattern #3161

1912	Nov 30	To Voucher	121	1912	Nov 30	To By Elder's Lm	492	3299
------	--------	------------	-----	------	--------	------------------	-----	------

Rough Pattern #3146

1912	Nov 30	To Voucher	121	1912	Nov 30	To By Elder's Lm	492	3299
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Sheet No. _____

Name _____

Address _____

Recovering Celluloid from Blue Amber
#3147

1912	Nov 30	To Voucher	47	1912	Nov 30	To By Elder's Lm	492	15495
"	"	"	53	"	"	"	"	5650
"	"	"	173	"	"	"	"	6140
"	"	"	124	"	"	"	"	750
Dec 31	"	"	39	"	"	"	"	7123
"	"	"	108	"	"	"	"	
"	"	"	155	"	"	"	"	
Jan 31	"	"	155	"	"	"	"	
Feb 28	"	"	124	"	"	"	"	
								31235

Rough Pattern #316

1912	Dec 31	To Voucher	155	1912	Dec 31	To Lm	492	1161
------	--------	------------	-----	------	--------	-------	-----	------

Rough Pattern #3173

1912	Dec 31	To Voucher	155	1912	Dec 31	To Lm	492	1161
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Sheet No. _____

Name _____

Address _____

Rubber Insulators #3197

1919	Dec 31	To Lumber	155	1919	Dec 31	Samuel	6039	165
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Repair Patterns #3189

1919	Dec 31	To Lumber	155	1919	Dec 31	Samuel	6039	155
------	--------	-----------	-----	------	--------	--------	------	-----

Rough Patterns #3195

1919	Dec 31	To Lumber	155	1919	Dec 31	Samuel	6039	1211
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Sheet No. _____

Name _____

Address _____

Rebabbit out Hearing #3198

1919	Dec 31	To Lumber	155	1919	Dec 31	Samuel	6039	455
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Rough Patterns #3200

1919	Dec 31	To Lumber	155	1919	Dec 31	Samuel	6039	249
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Point & Dressing Preparation #3205

1919	Jan 31	To Lumber	155	1919	Jan 31	Samuel	6039	1710
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Sheet No. _____

Name
Address

Rough Pattern #3217

1913	Jan 31 To Lumber	122	1913	Jan 31 To Lumber	122
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Rough Pattern #3215

1913	Jan 31 To Lumber	122	1913	Jan 31 To Lumber	122
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Rough Pattern #3226

1913	Jan 31 To Lumber	122	1913	Jan 31 To Lumber	122
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Sheet No. _____

Name
Address

Rough Pattern #3241

1913	Jan 31 To Lumber	100	1913	Jan 31 To Lumber	100
Feb 25	"	122	Feb 25	"	122

Rough Pattern #3247

1913	Feb 25 To Lumber	122	1913	Feb 25 To Lumber	122
------	------------------	-----	------	------------------	-----

Roll Down Copper Strip #3255

1913	Feb 25 To Lumber	122	1913	Feb 25 To Lumber	122
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Sheet No. _____

Name _____

Address _____

Rough Pattern

#3258

¹⁹¹³
July 28 To Lumber 120
¹⁹¹³
July 28 By E.S.B. Co. Lm 7220 605

¹⁹¹³
Mar 31 To Lumber 120
Rough Pattern #3291
¹⁹¹³
31 Mar 31 By E.S.B. Co. Lm 7225 3954

¹⁹¹³
July 28 To Lumber 120
Rough Pattern #3261
¹⁹¹³
July 28 By E.S.B. Co. Lm 7225 720

¹⁹¹³
Mar 31 To Lumber 120
Rough Pattern #3286
¹⁹¹³
12.09 Mar 31 By E.S.B. Co. Lm 7235 12.594

¹⁹¹³
Mar 31 To Lumber 120
Repair Patterns #3285
¹⁹¹³
77.11 Mar 31 By E.S.B. Co. Lm 7235 77.11

Sheet No. _____

Name _____

Address _____

Rough Pattern

#3389

¹⁹¹³
June 30 To Lumber 175
¹⁹¹³
1171 June 30 By E.S.B. Co. Lm 7617 1171

¹⁹¹³
June 30 To Lumber 175
Rough Pattern #3390
¹⁹¹³
1171 June 30 By E.S.B. Co. Lm 7620 1171

¹⁹¹³
June 30 To Lumber 175
Rough Pattern #3391
¹⁹¹³
250 June 30 By E.S.B. Co. Lm 7621 250
July 31 " " " " 7762 53

Sheet No. _____

Name _____

Address _____

Rough & Tattum #3120

1913
 July 31 To Cash 129
 1913
 July 31 By E. S. B. Co. Inc. 7763 253

1913
 July 31 To Cash 129
 July 31 " " 116
 1913
 July 31 By E. S. B. Co. Inc. 7763 120
 July 31 " " " 7763 221

1913
 July 31 To Cash 129
 1913
 July 31 By E. S. B. Co. Inc. 7764 1025

Sheet No. _____

Name _____

Address _____

Rough & Tattum #3129

1913
 July 31 To Cash 129
 1913
 July 31 By E. S. B. Co. Inc. 7764 384

1913
 July 31 To Cash 129
 1913
 July 31 By E. S. B. Co. Inc. 7764 125

1913
 July 31 To Cash 129
 1913
 July 31 By E. S. B. Co. Inc. 7764 532

Sheet No. _____

Name
AddressLong & Satterton
#2442

1912	July 31	To Lumber	109	541	July 31 By S.S.B. on Inv 7764	541
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1912

Necessary Repairs to Old 140 Lifting Machine
#3355

July 31	To Lumber	109	99	July 31 To T.H. Edin on Inv 7506	99
30	"	116	3028	July 31 " " " 7716	3028

1912

Long & Satterton
#2442

Aug 31	To Lumber	116	177	Aug 31 By S.S.B. on Inv 7579	177
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Sheet No. _____

Name
AddressLong & Satterton
#2460

1912	Aug 31	To Lumber 116	185	Aug 31 By S.S.B. on Inv 7579	185
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1912

Long & Satterton
#2461

Aug 31	To Lumber 116	924	Aug 31 By S.S.B. on Inv 7579	924
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1912

Long & Satterton
#2462

Aug 31	To Lumber 116	1246	Aug 31 By S.S.B. on Inv 7579	1246
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Sheet No. _____

Name _____

Address

Repair and Powder Sifter #3117.5

1973				1973			
Crop	31	20	116	1050	Crop	31	By JAE
Sept	30	.	109	3123	Sept	30	1080
							3123

Rough & Patton #3481				
Sept 30	To Transfer	109	759	Sept 30 By Ethel L B. Linn 7990
				759

Repair on Kilis Ant.									
1913						1913		1914	
Sept 30	20	20	109.	152	Sept 30	By W. H. Miller	106.	152	
Oct 31	"	"	121.	16	Oct 31	"	8162.	16	

Sheet No. _____

Name _____

Address

Rough Pattern.

1913			1913			
Sept 30	To Transfer	109	221	Sept 30	By L.S.B. Co. Inv 7990	221

<i>Repair Annealing Pot Pattens</i>					
<i>1913</i>			<i>1913</i>	<i>#2576</i>	
<i>Sept. 30</i>	<i>To Balance</i>	<i>109</i>	<i>11411</i>	<i>Sept. 30 by P.B.C. Co. Inv.</i>	<i>7991</i>
<i>Oct. 31</i>	"	<i>122</i>	<i>2453</i>	<i>Oct. 31 " " "</i>	<i>8106</i>
					<i>14411</i>
					<i>2453</i>

<div style="text-align: right;"> <i>Rouge & Patterson</i> <i>1913</i> \$2500 </div>									
Sept 30	To Cash	109	128	Sept 30	By G. B. Co. Inc	7991	128		

Sheet No.

Name
Address

Regrind & Repair Pocket Breaker Rolls
#3502

1913

Sept 30	To Wmcker	109	1209	Sept 30	By L. C. Wmcker	8029	1209
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1413

Sept 30	To Voucher 109	739	Sept 30 By E. B. B. to Lin 7991	739
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1913

Oct	31	To Balance	26	22 00	Oct 31	By M.A. Brown	81 57	4275
"	"	"	36	70 16 <td>Nov 30</td> <td>"</td> <td>82 82 <th>4033</th> </td>	Nov 30	"	82 82 <th>4033</th>	4033
"	"	" <th>122</th> <td>137 1 <td>Dec 31</td> <td>"</td> <td>82 85 <th>1600</th> </td></td>	122	137 1 <td>Dec 31</td> <td>"</td> <td>82 85 <th>1600</th> </td>	Dec 31	"	82 85 <th>1600</th>	1600
Nov 30	"	" <th>99</th> <td>250</td> <td>Jan 31</td> <td>"</td> <td>87 81</td> <th>6107</th>	99	250	Jan 31	"	87 81	6107
"	"	" <th>111</th> <td>378 8 <td>Feb 28</td> <td>"</td> <td>86 00</td> <th>6001</th> </td>	111	378 8 <td>Feb 28</td> <td>"</td> <td>86 00</td> <th>6001</th>	Feb 28	"	86 00	6001
Dec 31	"	" <th>106</th> <td>486</td> <td>Mar 31</td> <td>"</td> <td>87 87 <th>5810</th> </td>	106	486	Mar 31	"	87 87 <th>5810</th>	5810
"	"	" <th>152</th> <td>1 0</td> <td>Apr 30</td> <td>"</td> <td>83 8</td> <th>5410</th>	152	1 0	Apr 30	"	83 8	5410
1916	"	" <th>156</th> <td>1124</td> <td>May 31</td> <td>"</td> <td>82 4 <th>3904</th> </td>	156	1124	May 31	"	82 4 <th>3904</th>	3904
Jan 31	"	" <th>155</th> <td>1124</td> <td>June 30</td> <td>"</td> <td>90 49 <th>3741</th> </td>	155	1124	June 30	"	90 49 <th>3741</th>	3741
Feb 28	"	" <th>101</th> <td>648</td> <td>July 31</td> <td>"</td> <td>91 03 <th>3741</th> </td>	101	648	July 31	"	91 03 <th>3741</th>	3741
Mar 31	"	" <th>106</th> <td>2 00</td> <td></td> <td></td> <td></td> <td></td>	106	2 00				
Apr 30	"	" <th>116</th> <td>411 0</td> <td></td> <td></td> <td></td> <td></td>	116	411 0				
May 31	"	" <th>115</th> <td>375</td> <td></td> <td></td> <td></td> <td></td>	115	375				
June 30	"	" <th>106</th> <td>376 1</td> <td></td> <td></td> <td></td> <td></td>	106	376 1				
July 31	"	" <th>35</th> <td>108</td> <td></td> <td></td> <td></td> <td></td>	35	108				
			136	660				

		1	To John 114
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Sheet No. _____

Name _____
Address _____

Repair of Brass Screen Filter #3519

1713

Oct 31	to December	45	135	Oct 31	to Dec 31	55	6436
		65	195			2273	2307
		111	336			5773	1570
		122	459			8600	3355
Nov 30		140	599				
Jan 31		45	644				
		122	766				
July 28		140	906				
		122	1028				

Nov 30
Jan 31
July 28

1915

Oct 31 To Transfer 1219	1219	Oct 31 By E.S.B. Jan 8106	1219
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1048

Oct 31	To Voucher	100	92.55	Nov 31	By SSB Co Inv	81.03	92.55
Nov 30	" "	100	83.35	Nov 30	" "	82.17	83.35
Dec 31	" "	156	64.91	Dec 31	" "	83.93	64.91

Sheet No. _____

Name _____

Address _____

Rough & Patton
#3547

1912	Nov	30	To Lumber	144	141	Nov 30	By E.S.B. Co. Inv	8778	141
------	-----	----	-----------	-----	-----	--------	-------------------	------	-----

1913	Nov	30	To Lumber	144	973	Nov 30	By E.S.B. Co. Inv	8778	973
------	-----	----	-----------	-----	-----	--------	-------------------	------	-----

1913	Nov	30	To Lumber	144	853	Nov 30	By E.S.B. Co. Inv	8778	853
------	-----	----	-----------	-----	-----	--------	-------------------	------	-----

Sheet No. _____

Name _____

Address _____

Rough & Patton
#3562

1912	Nov	30	To Lumber	144	707	Nov 30	By E.S.B. Co. Inv	8779	707
------	-----	----	-----------	-----	-----	--------	-------------------	------	-----

1913	Nov	30	To Lumber	144	400	Nov 30	By P.D. Co. Inv	8266	400
------	-----	----	-----------	-----	-----	--------	-----------------	------	-----

1913	Nov	30	To Lumber	144	05	Nov 30	By E.S.B. Co. Inv	8229	05
	Dec	31	"	156	540	Dec 31	"	8245	540

Sheet No. _____

Name
AddressRepair Lab. Lathrop 1295²
#3595

1912		1913		1914		1915	
Dec 31	Vanhook	156	Nov 31	Dec 31	Edwin Klingbeil	8247	Nov

1912		Repair & Decentral		1913		1914	
Dec 31	Vanhook	156	1050	Apr 31	828	Dec 31	8290
Nov 31	"	129	1570	Nov 31	"	"	8283
July 28	"	1321	1480	July 28	"	"	8292

1912		Repair One Receiver Exhibit Lathrop		1913		1914	
Dec 31	Vanhook	156	72	Dec 31	828	Nov 31	8295

Sheet No. _____

Name
AddressResistance Comprising Units
#3992

1912		1913		1914		1915	
Nov 30	Vanhook	109	5459	Nov 30	828	Dec 31	8290
Dec 31	"	157	1050	Dec 31	"	"	8290

1912		Repair Normalizing Port Lathrop		1913		1914	
Nov 30	Vanhook	109	5459	Nov 30	828	Dec 31	8290

1912		Repair & Decentral		1913		1914	
July 27	Vanhook	30	1513	July 27	828	Aug 1	8290
"	"	147	713	Mar 31	"	"	8290
Mar 31	"	38	2562	Apr 30	"	"	8290
Apr 30	"	33	2562	May 31	"	"	10014
May 31	"	62	807				8297

Sheet No. _____

Name _____

Address

Repairs to Patterys -----
13939

1901			1901		
June 30	Voucher	5.00	577	June 30	Balance Home Wks. 10115
					5777

Repair & Replacement of Machinery & Tools, Gravel Div.

1915		Receipts		Disbursements		Balance	
Apr. 21	Income	221.	240.25	Apr. 31	Ill & Caroline Dr.	103.67	212.5
Sept 30	"	116.	500.	Sept 30	"	10.458	18.6
Nov 30	"	15.	596	Nov 30	"	10.136	133.6
	"	117	1034	Dec 31	"	107.57	277.7
Dec 31	"	226	2274			109.3	395.
Dec 29	"	126	37.5				

J. Ryford LHM

Sept 30	1915	50	Sept 30	1915	50
---------	------	----	---------	------	----

Name _____

Address:

Repairing Ford Touring Car

[illegible]

Repair and Supplies for Chalmer Auto

1911		1912		1913		1914		1915	
April 30	135	100.00	Apr 30	141.17	112.88	100.00	100.00	100.00	100.00
May 31	135	141.17	May 31	141.17	112.88	100.00	100.00	100.00	100.00
June 30	135	141.17	June 30	141.17	112.88	100.00	100.00	100.00	100.00
July 31	135	141.17	July 31	141.17	112.88	100.00	100.00	100.00	100.00
Aug 31	135	141.17	Aug 31	141.17	112.88	100.00	100.00	100.00	100.00
Sept 30	135	141.17	Sept 30	141.17	112.88	100.00	100.00	100.00	100.00
Oct 31	135	141.17	Oct 31	141.17	112.88	100.00	100.00	100.00	100.00
Nov 30	135	141.17	Nov 30	141.17	112.88	100.00	100.00	100.00	100.00
Dec 31	135	141.17	Dec 31	141.17	112.88	100.00	100.00	100.00	100.00
Total	135	141.17	Total	141.17	112.88	100.00	100.00	100.00	100.00

Repair Cabinet Jigs # 1163

1916	Apr 30	Vouchers	96	261	Apr 29	E. P. Deke C. Dep 11/15/15	261
------	--------	----------	----	-----	--------	----------------------------	-----

Sheet No.

Name Repair (Hindabaker) Auto
Address #1170

1916
May 31 Voucher 105 1791 May 31 P.B. & Co. Inc. 1170 1791

Red Pop Sprinklers #1173

1916
May 31 Voucher 105 1791 May 31 P.B. & Co. Inc. 1170 1791
June 30 " 105 1791 June 30 " 1170 1791

Repair Induct. & Vacuum Motor Holders

1916
June 30 Voucher 105 1791 June 30 P.B. & Co. Inc. 1170 1791
July 31 " 105 1791 July 31 " 1170 1791

Sheet No.

Name Repair to Heavy Mill Grinder
Address #1170

June 30 Voucher 105 1791 June 30 P.B. & Co. Inc. 1170 1791

Repair Hydraulic Valves #1172

June 30 Voucher 105 1791 June 30 P.B. & Co. Inc. 1170 1791

Repair two Vacuum Holders

June 30 Voucher 105 1791 June 30 P.B. & Co. Inc. 1170 1791

Sheet No. _____

Name _____

Address _____

Reducing Packing of Diesel Pumps
H 217

June 30	Voucher	108	1016	7916	June 30	W.E. H. Co.	11476	1016
---------	---------	-----	------	------	---------	-------------	-------	------

Repairs to Diesel Record Mounting Mach.
H 217

June 30	Voucher	108	605	June 30	W.E. H. Co.	11476	1016
July 31	"	132	1418	July 31	"	11707	1016

Repairs to Chrysler for Superchiller
H 217

July 31	Voucher	11	1510
"	"	44	1225
"	"	132	102

Sheet No. _____

Name _____

Address _____

Repairs to Chrysler for Chrysler Pumping Car
H 217

July 31	Voucher	44	1225
"	"	132	102

10 Bangalore Packing Powder in Mould
H 217

July 31	Voucher	69	52	1016	July 31	W.E. H. Co.	11476	1016
"	"	82	1016					
"	"	132	1016					
"	"	61	1016					

Sheet No.

Name

Address

Repair Jeering Machine for Maudie
H. T. C. V.

July 31 (Coucher) 125 100 July 31 Rem. Maudie M. S. C. 11735 600

Repair Laboratory Balance
H. T. C. V.

July 31 (Coucher) 125 200 July 31 Rem. Maudie M. S. C. 11736 200

Standard Oil Co 100 Special Cells for Navy #249 Solution #1 115
Labor Material for Submarine Cells #249 Solution #1 135.10
Speakers for 200 - 1 Separating Blade #250 Split Wood Chisel #3557
thread Records #2014 Shaft #154 Special Cells 10365
Special Photo for 2 Submarine Cells #251 Solution #1 116
Carna Experiments #2025 2 cren #254 Solution #1 117
Stereoscopic Photos #2026 Smith H. H. 20m 22 Specks Paint & Resin #3123
Small P. C. Shipley Coat #5049 1000 Shaving from 2 1/4 ft #3124
Labor & Matl for 1000 Stevens W. 20m 1000 Shaving from 2 1/4 ft #3125
Six Field Mts 4 Springs (C) #2691 Signs for Trading Ship #3126
for Welding Mach #2032 Scrapers #2711 Sign for Trading Ship #3127
Spinning Machine 5 Shaving Machine #274 Sign for Trading Ship #3128
for Motor Records #2045 Thapet & Co #2726 Specifications for Signature #3129
Seven Tube Stoves 6 Steel Support #2727 Submarine Cells #3130
Brinding Machine #2090 Open Wheel #2728 Stick of Paint Barrel 119
Substitute for Rubber 7 Shaving Machine #2729 Separation 1000 #3131
top in Battery Case #2107 Safety Switches #2730 Signs for Maudie #3132
Smith R. J. 1000 Steel Wreath #2731 Signs for Maudie #3133
Labor & Matl for 1000 Shaving Machine #2732 Signs for Maudie #3134
Mobile "B" #2130 Shafting #2733 Signs for Maudie #3135
Soda Brinding 9 Shaving Attachment #2734 Signs for Maudie #3136
Machine #2139 Shafting etc #2735 Signs for Maudie #3137
Spring Shating #2140 Salt Water Auto #2736 Signs for Maudie #3138
Six Alcombing 11 Surface Off #2737 Signs for Maudie #3139
for a 8' Cell #2141 Simpson J. C. 20m 110 Submarine Batteries 13960
Storage Battery Cell 1 Metal Drums #2142 Signs for Maudie #3140
3 1/2' x 8' x 8' 2160 Signet Light #2143 Signs for Maudie #3141
Schiffel Chas 100 Signs for Maudie #3142
H. M. for 100 Signs for Maudie #3143
Sketches of 100 Signs for Maudie #3144
Height Cury #2171 Single Unit Recorder #3145 Signs for Maudie #3146
Signet 100 Signs for Maudie #3147
20 m for 101 Steel Annular Plate #3148 Signs for Maudie #3149
Schurink for 100 Signs for Maudie #3150 Signs for Maudie #3151
L & M for - 100 Signs for Maudie #3152 Signs for Maudie #3153
Shipping 13 New Building 100 Signs for Maudie #3154 Signs for Maudie #3155
Machine #2165 Signet 100 Signs for Maudie #3156 Signs for Maudie #3157
Shaving Machine for 14 Signs for Maudie #3158 Signs for Maudie #3159
Six Reeling Machine #2166 Signs for Maudie #3160 Signs for Maudie #3161
Submarine Cell #2167 Signs for Maudie #3162 Signs for Maudie #3163
Sallyman A. 102 Signs for Maudie #3164 Signs for Maudie #3165
Storage Battery Cell 16 Signs for Maudie #3166 Signs for Maudie #3167
for Signet 100 Signs for Maudie #3168 Signs for Maudie #3169
Set of Camp Springs #2509 Signs for Maudie #3170 Signs for Maudie #3171
Special Tools #2510 Signs for Maudie #3172 Signs for Maudie #3173
Labor & Matl for 100 Signs for Maudie #3174 Signs for Maudie #3175
Submarine Cell #2511 Signs for Maudie #3176 Signs for Maudie #3177
Sheet Iron Discs #2512 Signs for Maudie #3178 Signs for Maudie #3179
Springs (9) #2513 Signs for Maudie #3180 Signs for Maudie #3181
Stick to store lumber #2514 Signs for Maudie #3182 Signs for Maudie #3183

Sheet No. 25

Name
Address

Shaving Machines
Year Ending Feb 28-1913

~~2912~~

1912		1911	
Apr 30	To Voucher	127	4604
May 31	"	136	28
"	"	142	Apr 30
"	"	140	"
May 31	"	145	May 31
June 30	"	148	"
Oct 31	"	22	Oct 31
"	"	97	Nov 30
"	"	129	Dec 31
Nov 30	"	121	Jan 28
Dec 31	"	155	
Feb 28	"	121	
Apr 30	To Voucher	140	318
May 31	"	144	Apr 30
June 30	"	134	May 31
Mar 31	"	106	June 28
			Mar 31

Apr 30	20 Voucher
May 31	"
July 28	"
Mar 31	"

312	July 30	By TAE Inc	7386
417	Jan 31	" "	8486
260	July 28	" "	8599
520	Mar 31	" "	8691

Sheet No. _____

Name
Address

Sheet No. _____

Name
AddressSingle Unit Rectifier
#3165

26

1972		1973	
Apr 30	To Balance	37	800
" "	" "	40	57
" "	" "	104	251
" "	" "	139	91
" "	" "	110	244
May 31	" "	27	400
" "	" "	80	600
" "	" "	96	135
" "	" "	122	610
" "	" "	133	618
" "	" "	134	30
" "	" "	145	41,605
June 30	" "	3	730
" "	" "	29	180
" "	" "	111	113
" "	" "	48	389
" "	" "	59	232
" "	" "	74	57
" "	" "	107	35
" "	" "	111	264
" "	" "	117	73
" "	" "	120	6,144
July 31	" "	6	138
" "	" "	21	180
" "	" "	42	213
" "	" "	73	11
" "	" "	88	190
" "	" "	101	422
" "	" "	111	320
" "	" "	117	989
" "	" "	129	376
Aug 30	" "	71	21
" "	" "	76	600
" "	" "	77	28
" "	" "	104	113
" "	" "	116	39,155
Sept 30	" "	3	350
" "	" "	18	320
" "	" "	30	282
" "	" "	72	194
" "	" "	74	10
" "	" "	92	136
" "	" "	96	60
" "	" "	108	11
Oct 31	" "	109	60,224
" "	" "	3	800
" "	" "	35	150
" "	" "	36	213
" "	" "	39	1,000
" "	" "	50	304
" "	" "	121	97
" "	" "	122	3,605
Nov 30	" "	47	3,316
" "	" "	48	41,304

27362
43,678
7,119
7661
6,557
7793
1,061
2,822
3,732
5,183
4,733

Sheet No. _____

Name
Address

Single Unit Rectifier #3165

Nov 30	Aug 31	77	11,251.10	Nov 30	Aug 31	8295	11,251.10
Dec 31	"	148	11,251.10	Dec 31	"	8295	11,251.10
"	"	321	11,251.10	"	"	8295	11,251.10
"	"	441	11,251.10	"	"	8295	11,251.10
"	"	46	11,251.10	"	"	8295	11,251.10
"	"	126	11,251.10	"	"	8295	11,251.10
"	"	137	11,251.10	"	"	8295	11,251.10
"	"	155	11,251.10	"	"	8295	11,251.10
"	"	156	11,251.10	"	"	8295	11,251.10
12th Jan 31	"	159	11,251.10	"	"	8295	11,251.10
"	"	23	11,251.10	"	"	8295	11,251.10
"	"	37	11,251.10	"	"	8295	11,251.10
"	"	63	11,251.10	"	"	8295	11,251.10
"	"	69	11,251.10	"	"	8295	11,251.10
"	"	127	11,251.10	"	"	8295	11,251.10
Feb 28	"	3	11,251.10	"	"	8295	11,251.10
"	"	13	11,251.10	"	"	8295	11,251.10
"	"	27	11,251.10	"	"	8295	11,251.10
"	"	28	11,251.10	"	"	8295	11,251.10
"	"	55	11,251.10	"	"	8295	11,251.10
"	"	51	11,251.10	"	"	8295	11,251.10
"	"	76	11,251.10	"	"	8295	11,251.10
"	"	91	11,251.10	"	"	8295	11,251.10
"	"	93	11,251.10	"	"	8295	11,251.10
"	"	114	11,251.10	"	"	8295	11,251.10
Mar 31	"	124	11,251.10	"	"	8295	11,251.10
"	"	116	11,251.10	"	"	8295	11,251.10
Apr 30	"	106	11,251.10	"	"	8295	11,251.10
"	"	6	11,251.10	"	"	8295	11,251.10
"	"	25	11,251.10	"	"	8295	11,251.10
"	"	28	11,251.10	"	"	8295	11,251.10
"	"	57	11,251.10	"	"	8295	11,251.10
"	"	74	11,251.10	"	"	8295	11,251.10
"	"	99	11,251.10	"	"	8295	11,251.10
"	"	107	11,251.10	"	"	8295	11,251.10
"	"	116	11,251.10	"	"	8295	11,251.10
May 31	"	101	11,251.10	"	"	8295	11,251.10
"	"	103	11,251.10	"	"	8295	11,251.10
"	"	104	11,251.10	"	"	8295	11,251.10
"	"	114	11,251.10	"	"	8295	11,251.10
"	"	115	11,251.10	"	"	8295	11,251.10
June 30	"	27	11,251.10	"	"	8295	11,251.10
"	"	45	11,251.10	"	"	8295	11,251.10
"	"	50	11,251.10	"	"	8295	11,251.10
"	"	71	11,251.10	"	"	8295	11,251.10
"	"	106	11,251.10	"	"	8295	11,251.10
July 31	"	35	11,251.10	"	"	8295	11,251.10
"	"	38	11,251.10	"	"	8295	11,251.10
"	"	75	11,251.10	"	"	8295	11,251.10
"	"	135	11,251.10	"	"	8295	11,251.10
Aug 30	"	53	11,251.10	"	"	8295	11,251.10

Sheet No. _____

Name
Address

Single Unit Rectifier #3165

Aug 30	Aug 31	86	11,251.10	Aug 30	Aug 31	86	11,251.10
Sept 30	"	71	11,251.10	Sept 30	"	86	11,251.10
"	"	77	11,251.10	"	"	86	11,251.10
"	"	80	11,251.10	"	"	86	11,251.10
"	"	81	11,251.10	"	"	86	11,251.10
Sept 30	"	90	11,251.10	Sept 30	"	86	11,251.10
"	"	18	11,251.10	"	"	86	11,251.10
"	"	28	11,251.10	"	"	86	11,251.10
"	"	66	11,251.10	"	"	86	11,251.10
"	"	68	11,251.10	"	"	86	11,251.10
"	"	91	11,251.10	"	"	86	11,251.10
"	"	97	11,251.10	"	"	86	11,251.10
"	"	98	11,251.10	"	"	86	11,251.10
Oct 31	"	1	11,251.10	Oct 31	"	86	11,251.10
"	"	37	11,251.10	"	"	86	11,251.10
"	"	81	11,251.10	"	"	86	11,251.10
"	"	83	11,251.10	"	"	86	11,251.10
"	"	88	11,251.10	"	"	86	11,251.10
Nov 30	"	125	11,251.10	Nov 30	"	86	11,251.10
"	"	26	11,251.10	"	"	86	11,251.10
"	"	106	11,251.10	"	"	86	11,251.10
"	"	109	11,251.10	"	"	86	11,251.10
Dec 31	"	157	11,251.10	Dec 31	"	86	11,251.10
May 31	"	2	11,251.10	May 31	"	86	11,251.10

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Spherical Photoc. R.M.

1105

1874
Apr. 30 *10.00*
May 31 *11.00*
June 30 *12.00*
July 31 *13.00*

1875
Apr. 30 *14.00*
May 31 *15.00*
June 30 *16.00*
July 31 *17.00*

1876
Apr. 30 *18.00*
May 31 *19.00*
June 30 *20.00*
July 31 *21.00*

Sheet No. _____

Name _____
Address _____

Sheet No. _____

Name _____
Address _____

Sharpen & Curries New Knives

#3250

50

1913

Sept 21 To Lumber 121
Oct 31 " " 140
May 31 " " 148

1913

Sept 21 To Lumber 121
Oct 31 " " 140
May 31 " " 148

Sheet Steel & Tube Sales #3244

1913

Mar 31 To Lumber 120
May 31 " " 52
June 30 " " 115

1913

Mar 31 To Lumber 120
May 31 " " 52
June 30 " " 115

Sheet No. _____

Name _____

Address _____

Sharpening Milling Cutters #3209

1913	1913		
Apr 30 To Voucher	4	Apr 30 By S.B.C. Inc. Dr.	1368
" " "	137	" " "	
" " "	139	" " "	
" " "	140	" " "	
	804		

1913

Solution used for Sinking Balluloid to New Jordan Blank.

1913	1913		
Apr 30 To Voucher	140	Apr 30 By J.B.C. Inc. Dr.	225

Sheet No. _____

Name _____

Address _____

Roscoe Smith

1913	1913		
May 31 To Voucher	140	May 31 By L.M. Inc.	1600
" 30 " " "	140	" 30 " " "	90
" 31 " " "	149	" 31 " " "	170
" 31 " " "	116	" 31 " " "	655

1913 1913

Sharpening Milling Machine Cutters #3393

1913	1913		
June 30 To Voucher	125	June 30 By S.B.C. Inc. Dr.	1064

Sheet No.

Name
AddressSpecial Adv. Slides for Goodrich Co.
#3636

1914

Mar 31. Number 106. 899 Mar 31. 50.5 End Dec 899.

Sheet No.

Name
AddressSpecifications & Literature
13657

1914

May 31. 1914	118	55.75	June 30. 1914	100.00	100.00
June 30. 1914	95	100.00	July 31. 1914	100.00	100.00
July 31. 1914	95	100.00	Aug 31. 1914	100.00	100.00
Aug 31. 1914	93	100.00	Sept 30. 1914	100.00	100.00
Sept 30. 1914	85	100.00	Oct 31. 1914	100.00	100.00
Oct 31. 1914	85	100.00	Nov 30. 1914	100.00	100.00
Nov 30. 1914	93	100.00	Dec 31. 1914	100.00	100.00
Dec 31. 1914	157	100.00	Jan 31. 1915	100.00	100.00
Jan 31. 1915	96	100.00	Feb 29. 1915	100.00	100.00
Feb 29. 1915	95	100.00	Mar 31. 1915	100.00	100.00
Mar 31. 1915	91	100.00	Apr 30. 1915	100.00	100.00
Apr 30. 1915	170	100.00	May 31. 1915	100.00	100.00
May 31. 1915	96	100.00	June 30. 1915	100.00	100.00
June 30. 1915	153	100.00	July 31. 1915	100.00	100.00
July 31. 1915	90	100.00	Aug 31. 1915	100.00	100.00
Aug 31. 1915	89	100.00	Sept 30. 1915	100.00	100.00
Sept 30. 1915	84	100.00	Oct 31. 1915	100.00	100.00
Oct 31. 1915	81	100.00	Nov 30. 1915	100.00	100.00
Nov 30. 1915	57	100.00	Dec 31. 1915	100.00	100.00
Dec 31. 1915	67	100.00	Jan 31. 1916	100.00	100.00
Jan 31. 1916	71	100.00	Feb 29. 1916	100.00	100.00
Feb 29. 1916	93	100.00	Mar 31. 1916	100.00	100.00

P. 125

1914

Stand for Loading Weight Tubes #3638

Apr 30. Number 106. 267

1914

Spherical Recording Plates
13658

Apr 30. 1914	251	179.1	May 30. 1914	100.00	100.00
May 30. 1914	51	100.00	June 30. 1914	100.00	100.00
June 30. 1914	93	100.00	July 31. 1914	100.00	100.00
July 31. 1914	96	100.00	Aug 31. 1914	100.00	100.00
Aug 31. 1914	25	100.00	Sept 30. 1914	100.00	100.00
Sept 30. 1914	251	100.00	Oct 31. 1914	100.00	100.00
Oct 31. 1914	107	100.00	Nov 30. 1914	100.00	100.00
Nov 30. 1914	125	100.00	Dec 31. 1914	100.00	100.00
Dec 31. 1914	138	100.00	Jan 31. 1915	100.00	100.00
Jan 31. 1915	153	100.00	Feb 29. 1915	100.00	100.00
Feb 29. 1915	90	100.00	Mar 31. 1915	100.00	100.00
Mar 31. 1915	37	100.00	Apr 30. 1915	100.00	100.00
Apr 30. 1915	59	100.00	May 31. 1915	100.00	100.00
May 31. 1915	85	100.00	June 30. 1915	100.00	100.00
June 30. 1915	90	100.00	July 31. 1915	100.00	100.00
July 31. 1915	111	100.00	Aug 31. 1915	100.00	100.00
Aug 31. 1915	121	100.00	Sept 30. 1915	100.00	100.00
Sept 30. 1915	177	100.00	Oct 31. 1915	100.00	100.00
Oct 31. 1915	69	100.00	Nov 30. 1915	100.00	100.00
Nov 30. 1915	84	100.00	Dec 31. 1915	100.00	100.00
Dec 31. 1915	211	100.00	Jan 31. 1916	100.00	100.00
Jan 31. 1916	218	100.00	Feb 29. 1916	100.00	100.00
Feb 29. 1916	39	100.00	Mar 31. 1916	100.00	100.00
Mar 31. 1916	141	100.00	Apr 30. 1916	100.00	100.00
Apr 30. 1916	30	100.00	May 31. 1916	100.00	100.00

P. 127

Sheet No. _____

Name _____

Address _____

Spindle Darning Machine
No. 4

1904		5, 6, 7	8, 9, 10
Jan. 1	15	95	13070
Jan. 31	37	54	11968
Feb. 29	39	54	11968
Mar. 31	40	54	11968
Apr. 30	41	54	11968
May 31	42	54	11968
June 30	43	54	11968
July 31	44	54	11968
Aug. 31	45	54	11968
Sept. 30	46	54	11968
Oct. 31	47	54	11968
Nov. 30	48	54	11968
Dec. 31	49	54	11968

Chas. E. Plange & Sons

Jan. 30	20	70.12	70.12
July 31	121	18	13

Sheet No. _____

Name _____

Address _____

The Counter side for Dice Rec. Pouches
H. H. 309

Jan. 1	121	2108
Jan. 31	122	2108
Feb. 29	123	2108
Mar. 31	124	2108
Apr. 30	125	2108
May 31	126	2108
June 30	127	2108
July 31	128	2108
Aug. 31	129	2108
Sept. 30	130	2108
Oct. 31	131	2108
Nov. 30	132	2108
Dec. 31	133	2108

Jan. 30	20	70.12	70.12
July 31	121	18	13

Sheet No. _____

Name _____

Address _____

Sheet No. 110

Name _____

Address _____

J. E. Simpson Linn

1912 July 31 To Voucher 124	1912 July 31 By Eliza Ann 124	1912 July 31 By Eliza Ann 124	1912 July 31 By Eliza Ann 124	1912 July 31 By Eliza Ann 124	1912 July 31 By Eliza Ann 124
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6 1/2' x 10' Dia Steel Discs H 3105

1912 Oct 31 To Voucher 119	1912 Oct 31 By Eliza Ann 119	1912 Oct 31 By Eliza Ann 119	1912 Oct 31 By Eliza Ann 119	1912 Oct 31 By Eliza Ann 119	1912 Oct 31 By Eliza Ann 119
----------------------------------	------------------------------------	------------------------------------	------------------------------------	------------------------------------	------------------------------------

Surface Slats H 3121

1912 Oct 31 To Voucher 119	1912 Oct 31 By Eliza Ann 119	1912 Oct 31 By Eliza Ann 119	1912 Oct 31 By Eliza Ann 119	1912 Oct 31 By Eliza Ann 119	1912 Oct 31 By Eliza Ann 119
----------------------------------	------------------------------------	------------------------------------	------------------------------------	------------------------------------	------------------------------------

Name
Address

Shaving Machine Brush & Holder #3125

31.25

1912	Oct. 31	To Transfer 1249.	-			0.00			
------	---------	-------------------	---	--	--	------	--	--	--

Sand Glasses #3135

#3135

[illegible]

Solid Concrete Bldg #3142

#3143.

1910	Nov	30	To Lumber	30	3026	July	25	By R.T.B. & Co. July	263	1162	116
			"	55	4411						
			"	13	100						
			"	19	10284						
			"	97	2010						
			"	124	16007						
Dec	31	"	"	16	5212						
Jan	31	"	"	00	2174						
			"	155	3173						
July	28	"	"	61	11216						
Mon	31	20	Lumber	68	1104	Dec 31	By R.T.B.	285	120		

Sheet No. _____

Name _____
Address _____

Single Unit Rectifier #3165

#3163

1870	Dec 31	Lumber	46	1872	Dec 31	W. H. Edwards	1871	21730
	"	"	47		"	"	1872	5296
1873	"	"	150	2145	Dec 31	"	"	26264
Jan 31	"	"	218	469				
	"	"	155	4707				
Feb 28	"	"	34	1853				
	"	"	91	168				
	"	"	124	26263				
				51290				53290
Mar 31	To Lumber	34	150	Mar 31	By H. B. Sine Inver	7269		21294
"	"	57	871					
"	"	58	2675					
"	"	115	535					
"	"	120	3834					

Supplies & Machine Work #3270

~~3320~~

1915		1913		1913		1915	
Jan 31	To Voucher	113	300	Jan 31	By Expense & Warden	70.11	99.98
"	"	115	96.88	21	" " " "	71.48	57.88
Feb 28	"	121	52.58				
			157.86				157.86

Steel Annealing Pots 13702

73702

¹⁹¹³ Jan 31	To Crumber	155	¹⁹¹³ 5225	Jan 31	Clarine	6908	5725
Mar 31	To Crumber	120	1713	Mar 31	By ESSBn Inr	7235	1713

Sheet No. _____

Name _____
Address _____

Special Equip. for Kinetophone Records #32411

1913	June 31 To Kinetophone	120	1913	July 31 By E. B. Gooden	6999	12
July 28	" "	124	July 28	" "	7129	1664
						1670

1913

Sides Holding Machine for New Blank Equipment #3225

July 28 To Kinetophone	124	1913	July 28 By E. B. Gooden	7024	203
Mar 31 To Kinetophone	120	1913	Mar 31 By E. B. Gooden	7214	414

Straighten Two Screw Drives #3239

1913	July 28 To Kinetophone	124	1913	July 28 By E. B. Gooden	7124	125
------	------------------------	-----	------	-------------------------	------	-----

Sheet No. _____

Name _____
Address _____

Solutions for Sticking Ballpoint to Steel Powder Blank #3399

1913	June 30 To Kinetophone	120	1913	June 30 By E. B. Gooden	714	205
------	------------------------	-----	------	-------------------------	-----	-----

1913

Solutions as Sampled #3406

July 31 To Kinetophone	129	1913	July 31 By E. B. Gooden	7141	1460
------------------------	-----	------	-------------------------	------	------

Solutions as Sampled #3406

1913	Aug 31 To Kinetophone	43	1913	Aug 31 By E. B. Gooden	7147	2515
------	-----------------------	----	------	------------------------	------	------

Sheet No. _____

Name
Address

Solution #1. 13148

1913			1913		
Aug 31	To Balance	116.45	Aug 31	By J. E. L. L. L.	79.17

1913	Solution #1		1913 #3571		
Sept 30	L. Kumber	1d	6.30	Sept 30 by J. B. Lowson	803.3
"	"	109	rrr		855

1940		Solutions #1		1941		1942		1943		1944		1945		1946		1947		1948		1949		1950		1951		1952		1953		1954		1955		1956		1957		1958		1959		1960		1961		1962		1963		1964		1965		1966		1967		1968		1969		1970		1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981		1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1992		1993		1994		1995		1996		1997		1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023		2024		2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035		2036		2037		2038		2039		2040		2041		2042		2043		2044		2045		2046		2047		2048		2049		2050		2051		2052		2053		2054		2055		2056		2057		2058		2059		2060		2061		2062		2063		2064		2065		2066		2067		2068		2069		2070		2071		2072		2073		2074		2075		2076		2077		2078		2079		2080		2081		2082		2083		2084		2085		2086		2087		2088		2089		2090		2091		2092		2093		2094		2095		2096		2097		2098		2099		2100		2101		2102		2103		2104		2105		2106		2107		2108		2109		2110		2111		2112		2113		2114		2115		2116		2117		2118		2119		2120		2121		2122		2123		2124		2125		2126		2127		2128		2129		2130		2131		2132		2133		2134		2135		2136		2137		2138		2139		2140		2141		2142		2143		2144		2145		2146		2147		2148		2149		2150		2151		2152		2153		2154		2155		2156		2157		2158		2159		2160		2161		2162		2163		2164		2165		2166		2167		2168		2169		2170		2171		2172		2173		2174		2175		2176		2177		2178		2179		2180		2181		2182		2183		2184		2185		2186		2187		2188		2189		2190		2191		2192		2193		2194		2195		2196		2197		2198		2199		2200		2201		2202		2203		2204		2205		2206		2207		2208		2209		2210		2211		2212		2213		2214		2215		2216		2217		2218		2219		2220		2221		2222		2223		2224		2225		2226		2227		2228		2229		2230		2231		2232		2233		2234		2235		2236		2237		2238		2239		2240		2241		2242		2243		2244		2245		2246		2247		2248		2249		2250		2251		2252			
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Sheet No. _____

Name
Address

Split Wood Plug #3855

142		143	
Nov 3. To Luncher 144	165	Nov 30 By P.B.B. In 8778	165

[illegible]

Sheet No. _____

Name
Address

L. F. Spachol 21111

1911				1911			
July 28	Lumber	26		July 28	L. F. M. Larr	8615	118

1911				Sticks Resin & Greenup Ship 13623			
				1911			
Mar 31	Lumber	106	2589	Mar 31	By J. R. Edinbroder	897	1189

1911		Stairway from Second to 1st floor in Laboratory					
Mar 31	Lumber	106	4063	Dec 31	By J. R. Edinbroder	307	4063

1911				1912			
Jan 31	Lumber	106	4063	Dec 31	By Normal Expense 302	4063	
June 30	Lumber	106		June 30	By Lumber & Co. Inc	897	6131
July 31	"	89		July 31	"	9065	6200
"	"	186		Aug 30	"	9201	581
Aug 30	"	90		Oct 31	"	9404	2399
Oct 31	"	63		Nov 30	"	9495	2039
"	"	115		Dec 31	"	9593	1804
Nov 30	"	49		Jan 31	"	9666	1036
"	"	107		Feb 28	"	9738	3286
Dec 31	"	68		Mar 31	"	9803	4966
Jan 31	"	73		Apr 30	"	9932	578
Feb 28	"	49		May 31	"	10004	5360
Mar 31	"	71					
"	"	116					
Mar 31	"	97					
Apr 30	"	48					
"	"	23					
May 31	"	183					

Sheet No. _____

Name
AddressShapell & Anchor Bolts
#3655

1911				1911			
Apr 30	Lumber	116	1987	Apr 30	Edinbroder	8813	1987
May 31	"	115	45	May 31	"	8876	45

1911		Stand for Loading Weight Test					
Apr 30	Lumber	116	748	Apr 30	Edinbroder	8819	1015
	"	58	267	May 31	"	8915	1161
May 31	"	115	1162				

1911		1911		1911		1911		1911	
Specifications & Literature									
June 30	Lumber	106	6131	June 30	By J. R. Edinbroder	897	6131		
July 31	"	89	178	July 31	"	865	6200		
"	"	186	6030	Aug 30	"	8701	581		
Aug 30	"	90	581	Oct 31	"	9404	2399		
Oct 31	"	63	2248	Nov 30	"	9495	2039		
"	"	115	51	Dec 31	"	9593	1804		
Nov 30	"	49	2011	Jan 31	"	9666	1036		
"	"	107	25	Feb 28	"	9738	3286		
Dec 31	"	68	1804	Mar 31	"	9803	4966		
Jan 31	"	73	1036	Apr 30	"	9932	578		
Feb 28	"	49	1516	May 31	"	10004	5360		
Mar 31	"	71	1500						
"	"	116	"						
Mar 31	"	97	1500						
Apr 30	"	48	58						
"	"	23	25						
May 31	"	183	3858						

Sheet No. _____

Name _____
Address _____Slides for Recording Device
13877

1915
Apr 30 Luncher 752. 2350. Apr 30 By W. Edman Under 9908 7350

1915
Special Riding Machine
May 31 Luncher 27 740 May 31 E. & B. On In 10024 10500
" " 135 10 June 30 " 10451 17064
" " 793 1008 June 31 " 10247 16301
June 30 " 90 5300 June 31 " 10336 2731
July 31 " 551 11711 Oct 31 " 10500 175
" " 47 112
" " 78 37
" " 56 16750
Aug 31 " 441 7931
Oct 31 " 35 1750

1915
Shafts for Repair 13911
May 31 Luncher 293 357 May 31 E. & B. In In 10037 507

Sheet No. _____

Name _____
Address _____Sulphonating Kettles
13963

1915
July 31 Luncher 50 553 July 31 W. Edman Under 10161 3519
" " 63 616
" " 73 70
" " 109 1689
" " 112 108
" " 173 47
" " 46 51
" " 5 8000
" " 9 13347
" " 24 3202
" " 57 266
" " 58 227
" " 69 88
" " 76 45431

1915
Submarine Batteries for Drafting Work
July 31 Luncher 26 2083 July 31 E. & B. On In 10044 7033
Oct 30 " 200 10086 10086
Oct 31 " 177 1770 Oct 31 " 10086 1250

1915
Spindle Drilling Machine
Oct 31 Luncher 17 545 Oct 31 E. & B. On In 10022 771
" " 57 23 Nov 30 " 10522 5792
" " 40 10 Dec 31 " 10720 7434
" " 18 507
" " 48 46
" " 66 2050
" " 80 108
" " 101 6656
" " 120 15
" " 144 468
" " 157 74
" " 212 4777
" " 25 12
" " 64 75
" " 124 125
" " 124 4777

Sheet No. _____

Name _____
Address _____

Screw Compeller

1915		1916		1917		1918		1919	
Nov 30	Lawcher	100	10	Nov 30	Edmund & Son	10526	713		
		218	703			10740	70886		
Dec 31	"	89	1751	Nov 31	"	10826	12322		
		111	351				34171		
		112	3900						
		120	698						
		226	14518						
1916			94110						
Jan 31	"	89	790						
		98	88						
		148	3427						

Screws & Nuts (Co.)

1915		1916		1917		1918		1919	
Nov 30	Lawcher	212	1930	Nov 30	Edmund & Son	10526	1930		

Screw Compeller

1916		1917		1918		1919	
Jan 31	Lawcher	1	26	Jan 31	Edmund & Son	10526	94
		12	420			10740	470
July 29	"	126		July 29	"		

Sheet No. _____

Name _____
Address _____

Screw Compeller

1916		1917		1918		1919		1920	
Jan 31	Lawcher	22	10	Jan 31	Edmund & Son	10526	61		
		95	10			10740	263		
July 29	"	176	263	July 29	"				

Screws & Nuts (Co.)

1916		1917		1918		1919		1920	
Jan 31	Lawcher	89	2713	Jan 31	Edmund & Son	10526	2425		
		145	1704	July 29	"	10740	2425		
July 29	"	176	220	July 29	"	11291	17451		
Nov 30	"	126	1704	May 31	"	11291	600		
May 31	"	126	400	June 30	"	11291	2425		
June 30	"	41	2725						

Sight Glass

1916		1917		1918		1919		1920	
July 29	Lawcher	26	10526	July 29	Edmund & Son	10526	2691		
		84	15	Mar 31	"	10740	2110		
		176	10526	July 29	"	11291	51		
Mar 31	"	119	3110						
Apr 30	"	40	51						

Sheet No. _____

Name _____

Address _____

Special Process
Lays

1915		1916		1917		1918		1919	
Mar 31	Vanhook	119	260	Mar 31	575	Bellevue	1125	260	260
Apr 30	"	61	521	Apr 30	"	"	1125	260	260
May 31	"	125	2016	May 31	"	"	1125	260	260

1916		1917		1918		1919	
Apr 30	Vanhook	6	1100	Apr 30	PRC	1100	260
"	"	67	26	"	"	"	260
"	"	61	125	"	"	"	260

1916		1917		1918		1919	
Apr 30	Vanhook	32	24	Apr 30	PRC	1125	260
"	"	60	125	May 31	"	1125	260
"	"	67	260	"	"	"	260
"	"	69	260	"	"	"	260
"	"	93	615	"	"	"	260
"	"	91	815	"	"	"	260
May 31	"	12	300	"	"	"	260
"	"	48	400	"	"	"	260
"	"	70	200	"	"	"	260
"	"	71	125	"	"	"	260
"	"	72	125	"	"	"	260
"	"	73	125	"	"	"	260
"	"	74	125	"	"	"	260
"	"	75	125	"	"	"	260
"	"	76	125	"	"	"	260
"	"	77	125	"	"	"	260
"	"	78	125	"	"	"	260
"	"	79	125	"	"	"	260
"	"	80	125	"	"	"	260
"	"	81	125	"	"	"	260
"	"	82	125	"	"	"	260
"	"	83	125	"	"	"	260
"	"	84	125	"	"	"	260
"	"	85	125	"	"	"	260
"	"	86	125	"	"	"	260
"	"	87	125	"	"	"	260
"	"	88	125	"	"	"	260
"	"	89	125	"	"	"	260
"	"	90	125	"	"	"	260
"	"	91	125	"	"	"	260
"	"	92	125	"	"	"	260
"	"	93	125	"	"	"	260
"	"	94	125	"	"	"	260
"	"	95	125	"	"	"	260
"	"	96	125	"	"	"	260
"	"	97	125	"	"	"	260
"	"	98	125	"	"	"	260
"	"	99	125	"	"	"	260
"	"	100	125	"	"	"	260

Sheet No. _____

Name _____

Address _____

Village Administration M. - Personal Dir
1111-7

1916		1917		1918		1919	
Apr 30	Vanhook	32	24	Apr 30	PRC	1125	260
"	"	60	125	May 31	"	1125	260
"	"	67	260	"	"	"	260
"	"	69	260	"	"	"	260
"	"	93	615	"	"	"	260
"	"	91	815	"	"	"	260
May 31	"	12	300	"	"	"	260
"	"	48	400	"	"	"	260
"	"	70	200	"	"	"	260
"	"	71	125	"	"	"	260
"	"	72	125	"	"	"	260
"	"	73	125	"	"	"	260
"	"	74	125	"	"	"	260
"	"	75	125	"	"	"	260
"	"	76	125	"	"	"	260
"	"	77	125	"	"	"	260
"	"	78	125	"	"	"	260
"	"	79	125	"	"	"	260
"	"	80	125	"	"	"	260
"	"	81	125	"	"	"	260
"	"	82	125	"	"	"	260
"	"	83	125	"	"	"	260
"	"	84	125	"	"	"	260
"	"	85	125	"	"	"	260
"	"	86	125	"	"	"	260
"	"	87	125	"	"	"	260
"	"	88	125	"	"	"	260
"	"	89	125	"	"	"	260
"	"	90	125	"	"	"	260
"	"	91	125	"	"	"	260
"	"	92	125	"	"	"	260
"	"	93	125	"	"	"	260
"	"	94	125	"	"	"	260
"	"	95	125	"	"	"	260
"	"	96	125	"	"	"	260
"	"	97	125	"	"	"	260
"	"	98	125	"	"	"	260
"	"	99	125	"	"	"	260
"	"	100	125	"	"	"	260

1916		1917		1918		1919	
Apr 30	Vanhook	67	24	Apr 30	PRC	1125	260
"	"	71	660	May 31	"	1125	260
"	"	125	260	"	"	"	260

1916		1917		1918		1919	
Apr 30	Vanhook	32	24	Apr 30	PRC	1125	260
"	"	60	125	May 31	"	1125	260
"	"	67	260	"	"	"	260
"	"	69	260	"	"	"	260
"	"	93	615	"	"	"	260
"	"	91	815	"	"	"	260
May 31	"	12	300	"	"	"	260
"	"	48	400	"	"	"	260
"	"	70	200	"	"	"	260
"	"	71	125	"	"	"	260
"	"	72	125	"	"	"	260
"	"	73	125	"	"	"	260
"	"	74	125	"	"	"	260
"	"	75	125	"	"	"	260
"	"	76	125	"	"	"	260
"	"	77	125	"	"	"	260
"	"	78	125	"	"	"	260
"	"	79	125	"	"	"	260
"	"	80	125	"	"	"	260
"	"	81	125	"	"	"	260
"	"	82	125	"	"	"	260
"	"	83	125	"	"	"	260
"	"	84	125	"	"	"	260
"	"	85	125	"	"	"	260
"	"	86	125	"	"	"	260
"	"	87	125	"	"	"	260
"	"	88	125	"	"	"	260
"	"	89	125	"	"	"	260
"	"	90	125	"	"	"	260
"	"	91	125	"	"	"	260
"	"	92	125	"	"	"	260
"	"	93	125	"	"	"	260
"	"	94	125	"	"	"	260
"	"	95	125	"	"	"	260
"	"	96	125	"	"	"	260
"	"	97	125	"	"	"	260
"	"	98	125	"	"	"	260
"	"	99	125	"	"	"	260
"	"	100	125	"	"	"	260

Name _____
Address _____

Wreaps for Period Couplings Drive
#4161

[illegible]

Special Drawing Board, T. Square

Apr 30 Voucher	96	2119 Apr 29 501100 Const 478.2111 x .05	2119
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Office of Recording & Mapping # 3946

May 31	Voucher	50	Na	Y.Y.Y.Y
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Salesman: Model Cylinder Record

June 30	Voucher	53	108	115	June 30	REBA Muri K.B.	115	96	2699
---------	---------	----	-----	-----	---------	----------------	-----	----	------

Sheet No. _____

Name _____
Address _____

Selling Administrator L. M. Phenol Div.
 1147

[illegible]

Putting Administrative Group to M. Aniline Dis

June 30	Yonkers	37	91605	June 30	Mt. Airline	11530	71461
			8th				11688

July 21	108	108	8.75		
"	112	112	8.75		
"	41	41	8.75		
"	42	42	7.00		
"	74	74	6.25		
"	92	92	3.88		
"	96	96	16.30		
"	123	123	3.42		
"	132	132	8.25		
"	141	141	8.25		

Specification & Literature p3689

June 30	Vouchers	61	576	June 30	E.O.B.C.	Ind. 115.77	2070
		71	115.00	July 31		115.78	1830

[illegible]

Sheet No. _____

Name _____

Address _____

People's Equiptment #2829
P. Blue. am. inst. Record Unit (Investment)

1977	Nov 30	Bought	13	24,777.11	1977	Nov 30	Bought	13	24,777.11	1977	Nov 30	Bought	13	24,777.11
			109	145				109	145				109	145
			114	276				114	276				114	276
			123	79				123	79				123	79
			124	3,328.00				124	3,328.00				124	3,328.00
			8	104.00				8	104.00				8	104.00
			20	175				20	175				20	175
			31	33.00				31	33.00				31	33.00
			32	620				32	620				32	620
			33	1,196				33	1,196				33	1,196
			37	10,175				37	10,175				37	10,175
			39	130.00				39	130.00				39	130.00
			46	16				46	16				46	16
			47	1,146				47	1,146				47	1,146
			48	1,524				48	1,524				48	1,524
			50	0.41				50	0.41				50	0.41
			102	36.34				102	36.34				102	36.34
			108	7,141				108	7,141				108	7,141
			125	870				125	870				125	870
			132	4,800				132	4,800				132	4,800
			126	1,454				126	1,454				126	1,454
			152	340				152	340				152	340
			156	57				156	57				156	57
			155	3,225.95				155	3,225.95				155	3,225.95
			48	2,976.1				48	2,976.1				48	2,976.1
			19	62				19	62				19	62
			23	50				23	50				23	50
			24	30				24	30				24	30
			71	17,864				71	17,864				71	17,864
			77	87				77	87				77	87
			80	250				80	250				80	250
			104	44				104	44				104	44
			115	577.00				115	577.00				115	577.00
			120	120.00				120	120.00				120	120.00
			134	1,125				134	1,125				134	1,125
			135	352				135	352				135	352
			143	225				143	225				143	225
			154	16				154	16				154	16
			155	3,144.75				155	3,144.75				155	3,144.75
			10	938				10	938				10	938
			18	565				18	565				18	565
			19	3,470				19	3,470				19	3,470
			20	800				20	800				20	800
			21	450				21	450				21	450
			24	150				24	150				24	150
			36	123				36	123				36	123
			39	66				39	66				39	66
			67	649				67	649				67	649
			69	1,395				69	1,395				69	1,395
			84	720				84	720				84	720
			91	20				91	20				91	20
			107	2,282				107	2,282				107	2,282
				1,171.75					1,171.75					1,171.75

Sheet No.

Name
AddressTools & Equipment #2879
W. Blue Ambard, Reared Plant (Investment)

1913	1913	1913	1913
July 28 Bought Forward	110	200	367.63 85
" " "	116	200	
" " "	121	200	
" " "	125	200	
" " "	123	200	
Mar 31 Do Lumber	112	200	
" " "	22	200	
" " "	22	200	
" " "	26	200	
" " "	29	200	
" " "	41	200	
" " "	45	200	
" " "	52	200	
" " "	51	200	
" " "	57	200	
" " "	68	200	
" " "	73	200	
" " "	90	200	
" " "	103	200	
" " "	105	200	
" " "	106	200	
" " "	107	200	
" " "	115	200	
" " "	117	200	
Apr 30	36	200	
" " "	40	200	
" " "	41	200	
" " "	47	200	
" " "	77	200	
" " "	103	200	
" " "	104	200	
" " "	110	200	
" " "	119	200	
" " "	128	200	
" " "	137	200	
" " "	139	200	
" " "	140	200	
" " "	141	200	
" " "	142	200	
" " "	143	200	
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" " "	192	200	
" " "	193	200	
" " "	194	200	
" " "	195	200	
" " "	196	200	
" " "	197	200	
" " "	198	200	
" " "	199	200	
" " "	200	200	

Sheet No.

Name
Address

Tools & Equipment #2879

1913	1913	1913	1913
June 30 To Lumber	112	200	367.63 86
" " "	116	200	
" " "	121	200	
" " "	125	200	
" " "	123	200	
" " "	127	200	
" " "	129	200	
" " "	131	200	
" " "	133	200	
" " "	135	200	
" " "	137	200	
" " "	139	200	
" " "	141	200	
" " "	143	200	
" " "	145	200	
" " "	147	200	
" " "	149	200	
" " "	151	200	
" " "	153	200	
" " "	155	200	
" " "	157	200	
" " "	159	200	
" " "	161	200	
" " "	163	200	
" " "	165	200	
" " "	167	200	
" " "	169	200	
" " "	171	200	
" " "	173	200	
" " "	175	200	
" " "	177	200	
" " "	179	200	
" " "	181	200	
" " "	183	200	
" " "	185	200	
" " "	187	200	
" " "	189	200	
" " "	191	200	
" " "	193	200	
" " "	195	200	
" " "	197	200	
" " "	199	200	
" " "	200	200	

Sheet No. _____

Name _____
Address _____

Sheet No. 33

Name _____
Address _____

Tubing Loading Machines 75-1/4" #3009

1914		1915		1916		1917		1918		1919	
January 20	145	June 29	145	By Establin	6018	32305					
July 31	141	July 31	58168	" "	6171	58168					
Aug 31	90	Aug 31	4120	" "	6214	34013					
" "	129	Sept 30	29893	" "	6458	615919					
Sept 30	73	Oct 31	12413	" "	6600	386893					
" "	88	Nov 30	208	" "	6711	324211					
" "	89	Dec 31	6865	" "	6823	307226					
Oct 31	121	Jan 31	106394	" "	6935	355320					
" "	82	Feb 28	117	" "	7007	385254					
" "	100	Mar 31	149								
Nov 30	149	Apr 30	385918								
" "	30	May 31	912								
" "	119	Jun 30	32								
" "	123	Jul 31	269								
Dec 31	121	Aug 31	379468								
" "	216	Sept 30	3724								
" "	411	Oct 31	194								
" "	156	Nov 30	3984								
1915	155	Dec 31	306786								
Jan 31	218	Jan 31	1106135								
" "	53	Feb 28	50								
" "	54	Mar 31	35								
" "	101	Apr 30	120								
" "	151	May 31	147								
" "	155	Jun 30	322423								
Belyst	85	Jul 31	17								
" "	91	Aug 31	41								
" "	121	Sept 30	277802								
" "	120	Oct 31	112322								
Mar 31	20	Mar 31	714	By Establin	7117	57577					
" "	"	Apr 30	100	" "	7332	10639					
" "	119	May 31	119	" "	7474	11445					
" "	120	Jun 30	56626	" "	7580	77					
Apr 30	139	Jul 31	7712	" "	7738	19739					
" "	140	Aug 31	10627								
May 31	142	Sept 30	11445								
June 30	41	Oct 31	77								
July 31	42	Nov 30	67338								

Sheet No. _____

Name _____

Address _____

Sheet No. 35

Name _____

Address _____

Trble Loading Machines (Square Units) # 30-5-

1912		1913		1914		1915		1916	
Aug 31	200 miles	129	12.50	Aug 31	By 8.860 Inr	6324	12.50		
Sept 30	" "	121	9.38	Sept 30	" "	6464	9.38		
Oct 31	" "	26	10.25	Oct 31	" "	6960	10.25		
Nov 30	" "	18	10.25	Nov 30	" "	7060	10.25		
Dec 31	" "	115	10.25	Dec 31	" "				
July 31	" "	124	10.25	July 31	" "				

1917
Mar 31, 2. Lumber 12.0

1918
Mar 31, By 8.860 Inr 7060 768 ✓

Sheet No. _____

Name
AddressSheet No. 26Name
Address

Tule Ringing Machine \$30.82

1911		1912		1913	
Aug 31	24 Voucher	76.25	Aug 31	By Ed Geo Inr	63.46
Sept 30	"	12.1	Sept 30	"	64.69
Oct 31	"	11.9	Oct 31	"	66.09
Nov 30	"	20	Nov 30	"	67.20
Dec 31	"	12.1	Dec 31	"	68.1
	"	11.6	Jan 31	"	69.3
	"	15.6	Feb 28	"	70.65
Jan 31	"	15.5	Mar 31	"	71.65
Feb 28	"	15.5	Apr 30	"	72.16
Mar 31	"	17.0	May 31	"	73.57
1912			1913		
Mar 31	24 Voucher	12.0	Mar 31	By Ed Geo Inr	74.08
Apr 30	"	11.0	Apr 30	"	75.16
May 30	"	11.0	May 31	"	76.56
June 30	"	12.0	June 30	"	77.41
July 31	"	11.0	July 31	"	78.60
	"	11.0	Aug 31	"	79.90
	"	11.0	Sept 30	"	80.93
Oct 31	"	11.0	Oct 31	"	82.08
Nov 30	"	11.0	Nov 30	"	83.26
Dec 31	"	11.0	Dec 31	"	84.57
	"	11.0	Jan 31	"	85.57
Jan 31	"	11.0	Feb 28	"	86.63
Feb 28	"	11.0	Mar 31	"	87.01
Mar 31	"	11.0	Apr 30	"	88.66
Apr 30	"	11.0	May 31	"	89.77
May 31	"	11.0	June 30	"	90.87
June 30	"	11.0	July 31	"	91.97
July 31	"	11.0	Aug 31	"	93.07
Aug 31	"	11.0	Sept 30	"	94.17
Sept 30	"	11.0	Oct 31	"	95.27
Oct 31	"	11.0	Nov 30	"	96.37
Nov 30	"	11.0	Dec 31	"	97.47
Dec 31	"	11.0	Jan 31	"	98.57
Jan 31	"	11.0	Feb 28	"	99.67
Feb 28	"	11.0	Mar 31	"	100.77
Mar 31	"	11.0	Apr 30	"	101.87
Apr 30	"	11.0	May 31	"	102.97
May 31	"	11.0	June 30	"	104.07
June 30	"	11.0	July 31	"	105.17
July 31	"	11.0	Aug 31	"	106.27
Aug 31	"	11.0	Sept 30	"	107.37
Sept 30	"	11.0	Oct 31	"	108.47
Oct 31	"	11.0	Nov 30	"	109.57
Nov 30	"	11.0	Dec 31	"	110.67
Dec 31	"	11.0	Jan 31	"	111.77
Jan 31	"	11.0	Feb 28	"	112.87
Feb 28	"	11.0	Mar 31	"	113.97
Mar 31	"	11.0	Apr 30	"	115.07
Apr 30	"	11.0	May 31	"	116.17
May 31	"	11.0	June 30	"	117.27
June 30	"	11.0	July 31	"	118.37
July 31	"	11.0	Aug 31	"	119.47
Aug 31	"	11.0	Sept 30	"	120.57
Sept 30	"	11.0	Oct 31	"	121.67
Oct 31	"	11.0	Nov 30	"	122.77
Nov 30	"	11.0	Dec 31	"	123.87
Dec 31	"	11.0	Jan 31	"	124.97
Jan 31	"	11.0	Feb 28	"	126.07
Feb 28	"	11.0	Mar 31	"	127.17
Mar 31	"	11.0	Apr 30	"	128.27
Apr 30	"	11.0	May 31	"	129.37
May 31	"	11.0	June 30	"	130.47
June 30	"	11.0	July 31	"	131.57
July 31	"	11.0	Aug 31	"	132.67
Aug 31	"	11.0	Sept 30	"	133.77
Sept 30	"	11.0	Oct 31	"	134.87
Oct 31	"	11.0	Nov 30	"	135.97
Nov 30	"	11.0	Dec 31	"	137.07
Dec 31	"	11.0	Jan 31	"	138.17
Jan 31	"	11.0	Feb 28	"	139.27
Feb 28	"	11.0	Mar 31	"	140.37
Mar 31	"	11.0	Apr 30	"	141.47
Apr 30	"	11.0	May 31	"	142.57
May 31	"	11.0	June 30	"	143.67
June 30	"	11.0	July 31	"	144.77
July 31	"	11.0	Aug 31	"	145.87
Aug 31	"	11.0	Sept 30	"	146.97
Sept 30	"	11.0	Oct 31	"	148.07
Oct 31	"	11.0	Nov 30	"	149.17
Nov 30	"	11.0	Dec 31	"	150.27
Dec 31	"	11.0	Jan 31	"	151.37
Jan 31	"	11.0	Feb 28	"	152.47
Feb 28	"	11.0	Mar 31	"	153.57
Mar 31	"	11.0	Apr 30	"	154.67
Apr 30	"	11.0	May 31	"	155.77
May 31	"	11.0	June 30	"	156.87
June 30	"	11.0	July 31	"	157.97
July 31	"	11.0	Aug 31	"	159.07
Aug 31	"	11.0	Sept 30	"	160.17
Sept 30	"	11.0	Oct 31	"	161.27
Oct 31	"	11.0	Nov 30	"	162.37
Nov 30	"	11.0	Dec 31	"	163.47
Dec 31	"	11.0	Jan 31	"	164.57
Jan 31	"	11.0	Feb 28	"	165.67
Feb 28	"	11.0	Mar 31	"	166.77
Mar 31	"	11.0	Apr 30	"	167.87
Apr 30	"	11.0	May 31	"	168.97
May 31	"	11.0	June 30	"	170.07
June 30	"	11.0	July 31	"	171.17
July 31	"	11.0	Aug 31	"	172.27
Aug 31	"	11.0	Sept 30	"	173.37
Sept 30	"	11.0	Oct 31	"	174.47
Oct 31	"	11.0	Nov 30	"	175.57
Nov 30	"	11.0	Dec 31	"	176.67
Dec 31	"	11.0	Jan 31	"	177.77
Jan 31	"	11.0	Feb 28	"	178.87
Feb 28	"	11.0	Mar 31	"	179.97
Mar 31	"	11.0	Apr 30	"	181.07
Apr 30	"	11.0	May 31	"	182.17
May 31	"	11.0	June 30	"	183.27
June 30	"	11.0	July 31	"	184.37
July 31	"	11.0	Aug 31	"	185.47
Aug 31	"	11.0	Sept 30	"	186.57
Sept 30	"	11.0	Oct 31	"	187.67
Oct 31	"	11.0	Nov 30	"	188.77
Nov 30	"	11.0	Dec 31	"	189.87
Dec 31	"	11.0	Jan 31	"	190.97
Jan 31	"	11.0	Feb 28	"	192.07
Feb 28	"	11.0	Mar 31	"	193.17
Mar 31	"	11.0	Apr 30	"	194.27
Apr 30	"	11.0	May 31	"	195.37
May 31	"	11.0	June 30	"	196.47
June 30	"	11.0	July 31	"	197.57
July 31	"	11.0	Aug 31	"	198.67
Aug 31	"	11.0	Sept 30	"	199.77
Sept 30	"	11.0	Oct 31	"	200.87
Oct 31	"	11.0	Nov 30	"	201.97
Nov 30	"	11.0	Dec 31	"	203.07
Dec 31	"	11.0	Jan 31	"	204.17
Jan 31	"	11.0	Feb 28	"	205.27
Feb 28	"	11.0	Mar 31	"	206.37
Mar 31	"	11.0	Apr 30	"	207.47
Apr 30	"	11.0	May 31	"	208.57
May 31	"	11.0	June 30	"	209.67
June 30	"	11.0	July 31	"	210.77
July 31	"	11.0	Aug 31	"	211.87
Aug 31	"	11.0	Sept 30	"	212.97
Sept 30	"	11.0	Oct 31	"	214.07
Oct 31	"	11.0	Nov 30	"	215.17
Nov 30	"	11.0	Dec 31	"	216.27
Dec 31	"	11.0	Jan 31	"	217.37
Jan 31	"	11.0	Feb 28	"	218.47
Feb 28	"	11.0	Mar 31	"	219.57
Mar 31	"	11.0	Apr 30	"	220.67
Apr 30	"	11.0	May 31	"	221.77
May 31	"	11.0	June 30	"	222.87
June 30	"	11.0	July 31	"	223.97
July 31	"	11.0	Aug 31	"	225.07
Aug 31	"	11.0	Sept 30	"	226.17
Sept 30	"	11.0	Oct 31	"	227.27
Oct 31	"	11.0	Nov 30	"	228.37
Nov 30	"	11.0	Dec 31	"	229.47
Dec 31	"	11.0	Jan 31	"	230.57
Jan 31	"	11.0	Feb 28	"	231.67
Feb 28	"	11.0	Mar 31	"	232.77
Mar 31	"	11.0	Apr 30	"	233.87
Apr 30	"	11.0	May 31	"	234.97
May 31	"	11.0	June 30	"	236.07
June 30	"	11.0	July 31	"	237.17
July 31	"	11.0	Aug 31	"	238.27
Aug 31	"	11.0	Sept 30	"	239.37
Sept 30	"	11.0	Oct 31	"	240.47
Oct 31	"	11.0	Nov 30	"	241.57
Nov 30	"	11.0	Dec 31	"	242.67
Dec 31	"	11.0	Jan 31	"	243.77
Jan 31	"	11.0	Feb 28	"	244.87
Feb 28	"	11.0	Mar 31	"	245.97
Mar 31	"	11.0	Apr 30	"	247.07
Apr 30	"	11.0	May 31	"	248.17
May 31	"	11.0	June 30	"	249.27
June 30	"	11.0	July 31	"	250.37
July 31	"	11.0	Aug 31	"	251.47
Aug 31	"	11.0	Sept 30	"	252.57
Sept 30	"	11.0	Oct 31	"	253.67
Oct 31	"	11.0	Nov 30	"	254.77
Nov 30	"	11.0	Dec 31	"	255.87
Dec 31	"	11.0	Jan 31	"	256.97
Jan 31	"	11.0	Feb 28	"	258.07
Feb 28	"	11.0	Mar 31	"	259.17
Mar 31	"	11.0	Apr 30	"	260.27
Apr 30	"	11.0	May 31	"	261.37
May 31	"	11.0	June 30	"	262.47
June 30	"	11.0	July 31	"	263.57
July 31	"	11.0	Aug 31	"	264.67
Aug 31	"	11.0	Sept 30	"	265.77
Sept 30	"	11.0	Oct 31	"	266.87
Oct 31	"	11.0	Nov 30	"	267.97
Nov 30	"	11.0	Dec 31	"	269.07
Dec 31	"	11.0	Jan 31	"	270.17
Jan 31	"	11.0	Feb 28	"	271.27
Feb 28	"	11.0	Mar 31	"	272.37
Mar 31	"	11.0	Apr 30	"	273.47
Apr 30	"	11.0	May 31	"	274.57
May 31	"	11.0	June 30	"	275.67
June 30	"	11.0	July 31	"	276.77
July 31	"	11.0	Aug 31	"	277.87
Aug 31	"	11.0	Sept 30	"	278.97
Sept 30	"	11.0	Oct 31	"	280.07
Oct 31	"	11.0	Nov 30	"	281.17
Nov 30	"	11.0	Dec 31	"	282.27
Dec 31	"	11.0	Jan 31	"	283.37
Jan 31	"	11.0	Feb 28	"	284.47
Feb 28	"	11.0	Mar 31	"	285.57
Mar 31	"	11.0	Apr 30	"	286.67
Apr 30	"	11.0	May 31	"	287.77
May 31	"	11.0	June 30	"	288.87
June 30	"	11.0	July 31	"	289.97
July 31	"	11.0	Aug 31	"	291.07
Aug 31	"	11.0	Sept 30	"	292.17
Sept 30	"	11.0	Oct 31	"	293.27
Oct 31	"	11.0	Nov 30	"	294.37
Nov 30	"	11.0	Dec 31	"	295.47
Dec 31	"	11.0	Jan 31	"	296.57
Jan 31	"	11.0	Feb 28	"	297.67
Feb 28	"	11.0	Mar 31	"	298.77
Mar 31	"	11.0	Apr 30	"	299.87
Apr 30	"	11.0	May 31	"	300.97
May 31	"	11.0	June 30	"	302.07
June 30	"	11.0	July 31	"	303.17
July 31	"	11.0	Aug 31	"	304.27
Aug 31	"	11.0	Sept 30	"	305.37
Sept 30	"	11.0	Oct 31	"	306.47
Oct 31	"	11.0	Nov 30	"	307.57
Nov 30	"	11.0			

Sheet No.

Name
Address

37

Sheet No.

Name
Address

Puting Reproduction

11158

1905

Apr 30 Voucher \$1
May 31 " 121
June 30 " 108
July 31 " 122

1906

Apr 29 E. Olsen wdr 11521
May 21 " 11522
June 30 " 11523
July 31 " 11674

11157
11157
11361
3317

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Taking Hypo-Mind Out of Tanks f 3233

1913

Jan 21 To Lumber 100
 Feb 28 " " 124

Apr 30 To Lumber 140

May 31 " " 147

Jul 30 " " 120

Oct 31 " " 129

Dec 31 " " 154

1914

Jan 31 By M. Edwards 6790
 Feb 28 " " " 7127

Apr 30 By M. Edwards 9394

May 31 " " " 7516

Jul 30 " " " 7664

Oct 31 " " " 7994

Dec 31 " " " 8379

Turn of Smooth Hangers f 3242

1913

Feb 28 To Lumber 121

1914

Feb 28 By C. Edwards 11400

210

Sheet No. _____

Name _____

Address _____

Twelve Press Linen Gears 13215

1873
July 28 To Lumber 124

1873
July 28 By Cash on Lumber 124

3533

1873

July 28 To Lumber 124

1873
July 28 By Cash on Lumber 7000

1779

Lube Reaming Machine 13251

Sheet No. _____

Name _____

Address _____

Three Drawing Boards & Tables 13353

1873
May 31 To Lumber 124

1873
May 31 By Cash on Lumber 124

5928

1873

May 31 To Lumber 124

June 30 " " 120

2364

1873
May 31 By Cash on Lumber 7000

June 30 " " 7600

2364

Two Air Assembling 13444

Sheet No. _____

Name _____

Address _____

No. Tippet

1912

May 31 To Lumber	112	11 May 31 By Lumber	11
July 31 " "	106	18 May 31 " "	18
Sept 30 " "	94	30 May 31 " "	50

Sheet No. 186

Name _____

Address _____

Three Ringing Finger Set #3088

1912	1912
Oct 31 To Lumber	129
563	563
Oct 31 By Lumber	6610
563	563

Testing Blower as per Sketch #3122

1912	1912
Oct 31 To Lumber	149
185	185
Oct 31 By Lumber	6615
185	185

No. 18 Lumber

May 31 Lumber	123	2012 May 31 Lumber	10012	2011
July 31 " "	251	1770 July 31 " "	10152	1770
Sept 31 " "	50	1058 Aug 31 " "	10150	6175
" "	170	903 Aug 31 " "	10331	4236
" "	173	23 Sept 30 " "	10476	3744
June 31 " "	276	1670 Oct 31 " "	10501	1564
July 31 " "	200	1236 Nov 31 " "	10570	1564
Oct 31 " "	89	2247 Dec 31 " "	10947	1564
" "	174	115		
Nov 30 " "	154	10534		
" "	154	154		
Dec 31 " "	276	3571		
	276	1545		

Testing Boards #3151

1912	1912
Nov 31 To Lumber	124
Dec 31 " "	153
470	470
Nov 31 By Lumber	6779
470	470

Sheet No. _____

Name _____

Address _____

Latex Pocket Stock Corporating Machines #3179

1913	31	To Lumber	155	1913	31	By Lumber	6032	2152
Jan 31	"	"	155	31	Jan 31	"	6940	3054

Latex Grinding Machines #3180

1913	31	To Lumber	155	1913	31	By Lumber	6035	7934
Jan 31	"	"	155	31	Jan 31	"	6946	6168

Latex Drawing Machines #3181

1913	31	To Lumber	155	1913	31	By Lumber	6034	205
Jan 31	"	"	155	31	Jan 31	By Lumber	6947	8399
July 28	"	"	124	31	July 28	"	7047	6163

Sheet No. _____

Name _____

Address _____

Latex Containers & Racks #3182

1913	31	To Lumber	120	1913	31	By Lumber	7629	20
June 30	"	"	46	31	June 30	"	7757	11752
July 31	"	"	73	31	July 31	"	7761	11936
Sept 30	To Lumber	20	11277					
			11336					

Latex Loading Machines #3224

1913	31	To Lumber	150	1913	31	By Lumber	7196	06
June 30	"	"	150	31	June 30	"	7196	

Time Glasses #3230

1913	31	To Lumber	129	1913	31	By Lumber	7761	992
July 31	"	"	129	31	July 31	"	7761	

Sheet No. _____

Name
Address

Testing Outfit 13471

July 31	To Balance	116	1712	Aug 31	By C.S.B. Co. Sur	7875	1712
Sept 30	"	28	15500	Sept 30	" " "	7990	1594
"	"	109	17386	Oct 31	" " "	158	16108
							17786

Three Studio Outfits Complete 1973 4 35.00

Left	30	To Lunch	18	620	Left	30	By T. H. E. Lane	800	19708
"	"	"	74	30	"	"	"	"	
			98	16					
			109	25					
				101					

Tube Lacks 1913 43554

Hon Lee	80 31	To Kowloon "	11/1 156	162-58 327-39	Hon Lee	Sally C.S.B.G. Senr 31	"	122-1 3240	163-58 327-39
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Sheet No. _____

Name _____
Address _____

Turn Out Two Rings 13580

142	120				
Dec 31	Wunder	116	315	Dec 31 E. B. H. Son	83912
					915

Three Miners Camp July 1911 3645

1511	1512	1513	1514	1515	1516	1517	1518
Mar 31 May 31	Tomber 103	840 484	Mar May 31	513y 51	Ed B Gordon "	8546	840 150

Turn up 4 Pedestals 1911 #3677

[illegible]

Sheet No. _____

Name _____

Address _____

Toss & Expense Buying Fred Louising Car
3479

May 31	Truck	221	1916	May 31	Edwin & Son's Truck	1075	274
--------	-------	-----	------	--------	---------------------	------	-----

Sept 30	Truck	200	1916	Sept 30	Edwin & Son's Truck	1036	1600
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Took Log for Delesante 12814

Jan 31	Truck	158	1916	Jan 31	Edwin & Son's Truck	1030	170
--------	-------	-----	------	--------	---------------------	------	-----

Twin Saddle for Dugger

Sheet No. _____

Name _____

Address _____

Lapping Bars for Lapping Loring Pats.
W 4170

May 31	Truck	125	1916	May 31	Edwin & Son's Truck	1036	928
June 30	"	108	1916	June 30	"	1031	518

June 30	Truck	71	1916	June 30	E. Phon. & Son's Truck	11024	208
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Two Draftsmen Boards 4215

June 30	Truck	76	1916	June 30	Edwin & Son's Truck	1030	10
July 31	"	80	1916	July 31	"	11024	1311
July 31	"	103	1916	July 31	"	11024	1311

Two Whistle Couplings 4215

Address

Two Picture Grams Complete
#14830

June 30	Voucher	108
July 31	"	60

[illegible]

Two Box Transp. for Disc Rec. Hq. Prison
184246

1968			
Signe	30	Voucher	108
July	31	"	131

09 June	30	P.M. E. L. L. R.	11576	09
14 July	31	" "	11708	14

Twelve 3 Point Edging Yarns

June 30	Vouchers	108
---------	----------	-----

4785	June 30	P.A.E Inc	Inv. 11509	4785
------	---------	-----------	------------	------

Sheet No. _____

Name _____

Address

Two Diamond Zipping Machine
#4250

June 30	Unapplied	108
July 31	"	122

6705	June 30	E. Phoenix	11604	6705
6695	July 31	"	11711	6695

Two Plans for Edison Cap. Water System

1916	July 31	Voucher	60
	"	"	132

675	Friday	31	Em. Adm. Cong. B. 1.	11726	163
966					
1086					

Sheet No.

Name

Address

Sam. Daniel Baker Vauvies Staudel
11 x 69

July 31 Voucher 63 122 1950 July 31 Cash on a/c 1174 1174

Proctor Bulletin Boards 17 x 22
11 x 42

July 31 Voucher 63 11456 July 31 M.C. Inc. Cash 1170 1170
109 109 1170 1170
132 132 1170 1170

Sheet No.

Name

Address

Phil. Granger for Bulletin Purposes
11 x 05

July 31 Voucher 93 122 1950 July 31 M.C. Inc. Cash 1174 1174

Two Bushings for Manual Grilling Machine
11 x 07

July 31 Voucher 122 122 1950 July 31 M.C. Inc. Cash 1170 1170

Sheet No.

Name

Address

Three Ring Wrapping Machines
#4319

1916
July 31 Voucher 125 816 July 31 Mch. General Mins 11713 816

Three Ring Wrapping Machines

1916
July 31 Voucher 125 816 July 31 Mch. General Mins 11713 816

W. A. Bushnell & Son, Co.
Labor & material

V
Valve cleaner
Vertical Bearing & Slider

89177
100
100
100

Slip No.

Name
Address

Varnish Pots #4238

Date	Description	108	335	Date	30 E. Inc.	64	1151	33	29
June 30	Voucher	108	2710	July 31	"	64	1151	33	29
July 31		122	314					31	64
			314					31	64

Sheet No.

Name

Address

Sheet No. 50

Name

Address

G. Wirth

Labor & Material for

1908

Mar 31 To Voucher 45
 " " " 71
 July 31 " " 10
 Mar 31 " " 15
 Apr 30 " " 50

1903

Mar 31 To Voucher 25
 May 31 " 115

1908

Mar 31 By L.M. Invoice 62 110
 July 31 " " " 37 296
 Mar 31 " " " 93 379
 Apr 10 " " " 100 479

1903

Mar 31 By L.M. Invoice 150
 May 31 " " 33 183

P. Weber

Labor & Material for

1908

Mar 31 To Voucher 71
 Apr 30 " " 86
 May 31 " " 80
 June 30 " " 79
 July 31 " " 80
 Aug 31 " " 56
 Sept 30 " " 96
 Oct 31 " " 104
 Nov 30 " " 90
 Dec 31 " " 99
 Jan 27 " " 79
 Mar 31 " " 91
 May 31 " " 111
 June 30 " " 84
 July 31 " " 108
 Aug 31 " " 113
 Sept 30 " " 104
 Oct 30 " " 102
 Dec 31 " " 133
 Jan 31 " " 115
 Feb 28 " " 90
 Mar 31 " " 103
 Apr 30 " " 118
 May 31 " " 119
 June 30 " " 90

1908

Mar 31 By L.M. Invoice 60 710
 Apr 30 " " " 117 326
 May 31 " " " 257 1747
 June 30 " " " 325 2072
 July 31 " " " 400 2472
 Aug 31 " " " 484 2956
 Sept 30 " " " 582 3538
 Nov 30 " " " 581 4119
 Dec 31 " " " 676 4795
 Jan 27 " " " 868 5663
 Mar 31 " " " 929 6592
 May 31 " " " 1090 7682
 June 30 " " " 1166 8848
 July 31 " " " 1252 10100
 Aug 31 " " " 1305 11405
 Sept 30 " " " 1416 12821
 Oct 30 " " " 1472 14293
 Nov 30 " " " 1581 15874
 Dec 31 " " " 1708 17582
 Jan 31 " " " 1843 19425
 Feb 28 " " " 1945 21370
 Mar 31 " " " 1992 23362
 Apr 30 " " " 2170 25532
 May 31 " " " 2238 27770
 June 30 " " " 170 27940

Name

Address

a. Wurth Labor & material for

Sheet No. 102

Name _____
Address _____

Wells Fargo & Co Express Ltm

1908		1908		1908			
Mar 31	To Voucher	71	111	Mar 31	By L.M. Service	66	44
Apr 30	"	86	120	Apr 30	"	116	51
May 31	"	95	135	May 31	"	124	57
June 30	"	77	202	June 30	"	240	58
July 31	"	80	282	July 31	"	338	63
Aug 31	"	85	367	Aug 31	"	441	68
Sept 30	"	96	463	Sept 30	"	485	73
Oct 31	"	104	567	Oct 31	"	563	78
Nov 30	"	99	650	Nov 30	"	582	83
Dec 31	"	99	749	Dec 31	"	669	88
Jan 30	"	88	837	Jan 30	"	1169	93
Feb 29	"	85	922	Feb 29	"	1257	98
Mar 31	"	108	1030	Mar 31	"	1348	103
Apr 30	"	113	1143	Apr 30	"	1360	108
May 31	"	104	1247	May 31	"	1494	113
June 30	"	107	1354	June 30	"	1536	118
July 31	"	132	1486	July 31	"	1638	123
Aug 31	"	115	1601	Aug 31	"	1766	128
Sept 30	"	103	1704	Sept 30	"	1947	133
Oct 31	"	118	1822	Oct 31	"	1994	138
Nov 30	"	117	1939	Nov 30	"	2178	143
Dec 31	"	70	2009	Dec 31	"	2230	148
Jan 30	"	88	2097	Jan 30	"	2278	153
Feb 29	"	100	2200	Feb 29	"	2821	158
Mar 31	"	96	2300	Mar 31	"	2870	163
Apr 30	"	96	2400	Apr 30	"	2910	168
May 31	"	96	2500	May 31	"	2960	173
June 30	"	96	2600	June 30	"	3010	178
July 31	"	96	2700	July 31	"	3060	183
Aug 31	"	96	2800	Aug 31	"	3110	188
Sept 30	"	96	2900	Sept 30	"	3160	193
Oct 31	"	96	3000	Oct 31	"	3210	198
Nov 30	"	96	3100	Nov 30	"	3260	203
Dec 31	"	96	3200	Dec 31	"	3310	208
Jan 30	"	96	3300	Jan 30	"	3360	213
Feb 29	"	96	3400	Feb 29	"	3410	218
Mar 31	"	96	3500	Mar 31	"	3460	223
Apr 30	"	96	3600	Apr 30	"	3510	228
May 31	"	96	3700	May 31	"	3560	233
June 30	"	96	3800	June 30	"	3610	238
July 31	"	96	3900	July 31	"	3660	243
Aug 31	"	96	4000	Aug 31	"	3710	248
Sept 30	"	96	4100	Sept 30	"	3760	253
Oct 31	"	96	4200	Oct 31	"	3810	258
Nov 30	"	96	4300	Nov 30	"	3860	263
Dec 31	"	96	4400	Dec 31	"	3910	268
Jan 30	"	96	4500	Jan 30	"	3960	273
Feb 29	"	96	4600	Feb 29	"	4010	278
Mar 31	"	96	4700	Mar 31	"	4060	283
Apr 30	"	96	4800	Apr 30	"	4110	288
May 31	"	96	4900	May 31	"	4160	293
June 30	"	96	5000	June 30	"	4210	298
July 31	"	96	5100	July 31	"	4260	303
Aug 31	"	96					

H. Wolke Labon & Material for

1908	July 31 To Voucher	48	1908	July 31 By L. M. Ins.	328	11
1910	Aug 31 " "	42	1910	Aug 31 " " "	2530	52

1912	May 31	20 Vornahme	43	1912	May 31	Bay Ins. L. & M.	5823	450
	June 29	" "	139		June 29	" " "	6117	85

Mr. Higley L.M.

[illegible]

Wooden Legs #3132

1911			1912		
Oct 21	To Voucher	119	Oct 31	By W.E. Ingham	6654
Nov 30	" "	124	Nov 30	" " "	6759

Sheet No. _____

Name _____

Address _____

West Orange N.J. Sept. L.M.

1912	Mar 31	To Lumber	120	1912	Mar 31	By L & M Lm	7292	252
	Apr 30	"	116		1730	May 31	"	2125
	May 31	"	115		1915			

Sheet No. _____

Name _____

Address _____

Work on Explosives & Saw Poles

#3533

1912	Oct 31	To Lumber	120	1912	Oct 31	By L & M Lm	8104	3135
	Nov 30	"	120		24908	Nov 30	"	24908
	Dec 31	"	156		2749	Dec 31	"	2749

Work on Strip Plating Machine

#3305

1913	Mar 31	To Lumber	120	1913	Mar 31	By E.S.B. Lm	7220	16541
	Apr 30	"	120		29527	Apr 30	"	29527
	May 31	"	52		11847	May 31	"	11847
	June 30	"	112		21147	June 30	"	21147
	July 31	"	120		23547	July 31	"	23547
	July 31	"	129		23547			

Work as Required on Pallets

#3586

1913	Dec 31	To Lumber	156	1913	Dec 31	By E.S.B. Lm	8351	2030
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Work on Patterns for Strip Plating Machine

#3306

1913	Mar 31	To Lumber	120	1913	Mar 31	By E.S.B. Lm	7221	20904
	Apr 30	"	120		2953	Apr 30	"	2953

Wood Work For Hydrate Gas Key

#3616

1914	July 28	To Lumber	132	1914	July 28	By E.S.B. Lm	8661	4314
	Mar 31	"	106		2318	Mar 31	"	2318
	Apr 30	"	116		2459	Apr 30	"	2459

Sheet No. _____

Name
AddressWooden Carrying Saw for Kinetic Records
#3647

1924

Mar 31	oucher	106	211	Mar 31 By M.B. Dunbar	8713	711
Apr 30	"	116	211	Apr 30	8774	711

1924

Mar 31	oucher	106	211	Mar 31 By M.B. Dunbar	8713	711
Apr 30	"	116	211	Apr 30	8774	711

Sheet No. _____

Name
AddressWheel Drive
#3831

1925

July 28	oucher	1107	961	July 28 By M.B. Dunbar	8747	961
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1925

July 28	oucher	1107	961	July 28 By M.B. Dunbar	8747	961
---------	--------	------	-----	------------------------	------	-----

Work on three 5 12 ball bearings
#3649

1924

Apr 30	oucher	116	861	Apr 30 By M.B. Dunbar	8817	861
May 31	"	103	53	May 31	8817	861
June 30	"	115	295	June 30	8865	2540
July 31	"	27	17	July 31	8975	1142
Aug 31	"	103	11	Aug 31	9199	171
Sept 31	"	106	251	Sept 31		
Oct 31	"	136	141	Oct 31		
Nov 31	"	90	171	Nov 31		

1924

Apr 30	oucher	116	861	Apr 30 By M.B. Dunbar	8817	861
May 31	"	103	53	May 31	8817	861
June 30	"	115	295	June 30	8865	2540
July 31	"	27	17	July 31	8975	1142
Aug 31	"	103	11	Aug 31	9199	171
Sept 31	"	106	251	Sept 31		
Oct 31	"	136	141	Oct 31		
Nov 31	"	90	171	Nov 31		

Wire Landing Machine L4 M to 22 ft
#3831

1925

Mar 31	oucher	129	124	Mar 31 By M.B. Dunbar	9175	124
Apr 30	"	171	524	Apr 30	9175	124
May 31	"	252	800	May 31		

1925

Mar 31	oucher	129	124	Mar 31 By M.B. Dunbar	9175	124
Apr 30	"	171	524	Apr 30	9175	124
May 31	"	252	800	May 31		

Work on connection with the Manufacturing of Steel Cleaning Machines
#3831

1925

Mar 31	oucher	138	118	Mar 31 By M.B. Dunbar	9149	118
Apr 30	"	147	747	Apr 30	9714	747

1925

Mar 31	oucher	138	118	Mar 31 By M.B. Dunbar	9149	118
Apr 30	"	147	747	Apr 30	9714	747

Wooden Blocks for Shipping
#3831

1925

Mar 31	oucher	171	255	Mar 31 By M.B. Dunbar	9149	255
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1925

Mar 31	oucher	171	255	Mar 31 By M.B. Dunbar	9149	255
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Wood Patterns for Bench Leg 13997

1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	2755	2756	2757	2758	2759	2760	2761	2762	2763	2764	2765	2766	2767	2768	2769	2770	2771	2772	2773	2774	2775	2776	2777	2778	2779	2780	2781	2782	2783	2784	2785	2786	2787	2788	2789	2790	2791	2792	2793	2794	2795	2796	2797	2798	2799	2800	2801	2802	2803	2804	2805	2806	2807	2808	2809	2810	2811	2812	2813	2814	2815	2816	2817	2818	2819	2820	2821	2822	2823	2824	2825	2826	2827	2828	2829	2830	2831	2832	2833	2834	2835	2836	2837	2838	2839	2840	2841	2842	2843	2844	2845	2846	2847	2848	2849	2850	2851	2852	2853	2854	2855	2856	2857	2858	2859	2860	2861	2862	2863	2864	2865	2866	2867	2868	2869	2870	2871	2872	2873	2874	2875	2876	2877	2878	2879	2880	2881	2882	2883	2884	2885	2886	2887	2888	2889	2890	2891	2892	2893	2894	2895	2896	2897	2898	2899	2900	2901	2902	2903	2904	2905	2906	2907	2908	2909	2910	2911	2912	2913	2914	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111

Sheet No. _____

Name
AddressHood Patterson
13995

1916	Oct 31	Number	177	386	Oct 31	East Penn Hobbs	1834	386
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1915	Oct 31	Number	177	101	Oct 31	East Penn Hobbs	1854	101
	Nov 30	"	214	130	Nov 30	"	1857	135

1916	Jan 31	Number	39	39	Jan 31	East Penn Hobbs	1854	1078
			118	636				

Sheet No. _____

Name
AddressHood Patterson
14673

1916	July 27	Number	126	2130	July 27	East Penn Hobbs	1854	2130
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1916	July 27	Number	126	1976	July 27	East Penn Hobbs	1854	1976
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1916	Apr 30	Number	76	700	Apr 27	East Penn Hobbs	1854	2183
		"	94	1287				

Sheet No.

Name _____

Address

A. Turok Fabrics & Materials Co.

THE GRAND PRIZE, TWENTY DOLLARS									
Apr 30	Vouched	96	11.67	Apr 29	Fr M	2nd	11.50	1467	
May 31	"	125	51	May 31	"		1145	51	

1916

Whole for Reduction Lots #11140

Apr 30	Voucher #1	VW Ups 29	Chen, Tom	E.D.B. & Son	11/99	775
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1916

Whole Gins for Production Pots 4183

May 31	Vancouver	135	288	May 31	E.D.B.C. Int.	11346	288
June 30	"	41	280	June 30	" " " "	11369	280

Sheet No. _____

Nome

Address

100 - 7/8" x 6" Wheel Pine
4303

1916	July 31	Voucher	54	1433	July 31	ESOP	667m.	11753	1503
			132						
				2470					
				1553					

Sheet No. _____

Name _____

Address _____

Sheet No. _____

Name _____

Address _____

Franklin M. L. Mink & Co. Motor Parts & Auto. Cadillac
2192

July 31 1914 *132* *113* *July 31 1914* *113* *July 31 1914* *113*

Sheet No. _____

Name _____

Address _____

Zinc Copper.
Acide Battery } 1-
* 2059

WEST ORANGE LABORATORY RECORDS EQUIPMENT AND SUPPLIES

The unbound correspondence, trade circulars, and other loose documents in this subseries relate to the purchase of equipment and supplies for the West Orange laboratory and other Edison interests. Many of the documents are unsolicited promotional circulars or routine letters involving the specifications, availability, cost, and delivery of equipment and supplies. Included are memoranda asking that materials be ordered; requests for prices or samples; and letters acknowledging orders from, or shipments to and among, Edison's interests. Orders for equipment, supplies, and foundry work often include requisition numbers, voucher numbers, or laboratory project numbers indicating the experiment or the Edison company to be billed for the order. In most cases the information or materials were requested on Edison's behalf by members of his laboratory staff, including Alvin D. Caskey, Fred C. Devonald, and Frederick P. Ott. Some of the outgoing and incoming letters involve the work of Henry J. Harms, Jr., and George E. Small on Edison's concrete house. A small group of items indicates Edison's direct oversight of individual requests or purchases.

Less than 5 percent of the documents have been selected. In general, only items that indicate Edison's direct participation in the order, purchase, and receipt of equipment and supplies have been selected. Also included are several of the Harms and Small letters and a list of chemicals sent to the laboratory from the defunct New Jersey and Pennsylvania Concentrating Works in Ogden, New Jersey. Related documents that provide an overview of laboratory purchases and expenditures may be found in the laboratory account books.

ALFRED F. MOORE.
CHAS. E. KING.
ANTHONY BOURNONVILLE.

ESTABLISHED 1820.

Alfred F. Moore,

Manufacturer of Insulated Wire for all Electrical Purposes

No. 200 S. 203 North Third St. corner Race

DICTATED BY JWC/LBH

Philadelphia, March 6, 1899. 189

Mr. Thomas A. Edison,

Laboratory,
Orange, N.J.

Dear Sir:

We are in receipt of your order #11458 for #23, #28 and #30 B. & S. Gauge Iron Wire cotton covered. We herewith enclose you a sample of #31 B. & S. Gauge soft iron wire, also a sample of #30 B. & S. Gauge bright iron wire, which are the only two sizes we have in stock. Kindly let us know if you can use either of these on your order for #50.

In reference to the #23 and #28, we cannot make any less than one stone on these sizes, which would make about 6½ lbs. each of the #28 and 12 lbs. of the #23.

Kindly advise us by return mail just what kind of iron wire you wish on the order, whether it is to be Norway or plain charcoal iron wire.

Yours very truly,

Alfred F. Moore

We want the softest charcoal iron wire nearest to sizes asked for and in such an amount as will come nearest our order we are in a great hurry Edison



NORTH AMERICAN TRANSPORTATION & TRADING CO.

618 FIRST AVE.

SEATTLE, WASH., July 23, 1900.

Mr. Thos A. Edison,

Orange N.J.

Dear Sir:

Agreeable to the request of our Vice President, Mr.

W. H. Isom, under date of April 6, we are sending to you today by express, charges prepaid, one box of Cape Nome sand, weighing 95 pounds and containing three sacks, one of sand in its natural state, one of tailings which have gone through the rocker without mercury; and the third of tailings through rocker with mercury.

Yours very truly,

NORTH AMERICAN TRANSPORTATION & TRADING CO.

Traffic Agent.

CABLE ADDRESS, INSULL, NEW YORK. LIEBER'S CODE, A. B. C. 4TH EDITION. PRIVATE CODE.
TELEPHONE CONNECTION.

TRADE **G. I.** MARK.
GENERAL INCANDESCENT ARC LIGHT CO.
FACTORY AND GENERAL OFFICES,
572-578 FIRST AVENUE, Cor. 33d STREET,
NEW YORK.

CHICAGO, ILL. 48 WEST JACKSON BOULEVARD.
PHILADELPHIA, PA. 828 DREXEL BLDG.
BOSTON, MASS. 31 WILK ST.
ST. LOUIS, MO. 438 CENTURY BLDG.
CLEVELAND, OHIO. 38-47 EAST PROSPECT ST.
MILWAUKEE, WIS. 408 WHEELER BLDG.
MINNEAPOLIS, MINN. 316 QUINCY BLDG.
DENVER, COLO. 321 15TH ST.
CINCINNATI, OHIO. 277 PERIN BLDG.
SAN FRANCISCO, CAL. 588 PARSONS BLDG.
CHARLOTTE, N. C. Y. M. C. A. BLDG.
EXPORT DEPARTMENT, N. Y. 572-578 FIRST AVE.

WHEN ANSWERING PLEASE REFER TO Sales Dept. PHK
New York, Sept. 20th, 1900.

Thomas A. Edison, Esq.,

Orange, N. J.:

Dear Sir:-

I beg to acknowledge with thanks receipt of yours of the 19th, inst, referring to two keyless sockets which you have sent me by express, and which I have received.

They are not, however, the sockets I want, and as the matter is a very important one apparently, take the liberty of returning the blueprint herewith with the following explanation.

I have drawn on this blueprint a sketch of the socket which you sent me. It is one of the forms of old keyless sockets No. 1 of the Bergmann catalogue and not the socket No. 6 which I am looking for.

By reference to the blueprint you will readily recognize the difference, and I hope ^{you yet} may be able to find one of the No. 6 sockets.

The old No. 1 socket is acorn shape. The No. 6 socket is more of a barrel shape. In the No. 1 socket the upper brass shell "A" simply checks or fits into the lower brass shell "B", and the two are held together by the ^{rubber} ~~copper~~ screw ring "C", while in the No. 6 socket the brass shell "A" is furnished with a male spun thread and the brass shell "B" has the female thread, and the two are screwed together, and as I remember it, the insulating ring "C" is not a screw ring at all, but a slip ring, which is cemented into the shell

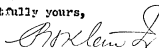
ADDRESS ALL CORRESPONDENCE TO THE COMPANY.

T-A-B-

Page 2-----

"A". The shell "A" screwing into the shell "B", of course, no screw ring was necessary to hold them together.

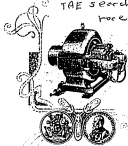
Very respectfully yours,



Atty. for S. Bergmann.

PHK
P

Lab-Supply
TAE search for
rare metals + Earth



GIRO-CONTO
REICHSBANK

TELEGRAMS-ADRESSE: FULGURA BERLIN.

FERNSPR.-ANSCHLÜSSE:
AMT II, N^o 2600 u. 2652.
50/2m.

A.B.C. Code used

BERGMANN-
ELEKTROMOTOREN UND DYNAMO-WERKE, AKTIENGESELLSCHAFT.

file

Berlin N. d. d. 19th. Nov. 1900.
Oudendijk, Straat, 19 23 30
nederlandsche straat.

Thomas A. Edison, Esq.,

Llewellyn Park,

Orange, N. J.

My dear Mr. Edison,

J.N.O.

I received from Mr. Bergmann your note, requesting me to secure for you a number of addresses and prices for "rare metals", which I however understand to be for preparations of rare metals called "rare earths".

The address you indicated in your note was very incomplete, but as you will see from the enclosed catalogue of E. de Haën Chemical Works "List", Hannover, I found the party you have been in relation with.

I eliminated three concerns that come into question, namely, The List Works at Hannover, Kunheim & Co. Berlin and Dr. O. Knöfler & Co. at Plotzensee, Berlin.

The two latter concerns only make the Thorium and Cerium Nitrates, while the concern E. de Haën makes preparations of a number of other rare metals, such as of Beryll, Calcium, Cerium, Didym, Erbium, Lanthan, Thorium, Titanium, Uranium, Yttrium, Zirkonium. All these in a number of different combinations.

I have written this concern for their best discounts for

Bergmann-Elektromotoren- und Dynamo-Werke Aktiengesellschaft.

Thomas A. Edison, Esq., Orange, N. J. contd. 19th. Nov. 1900. -

different quantities and hope to be able to inform you about this by next mail.

Bergmann requests me to tell you that any order you have to place for any of these substances you had best turn over to us and it shall have our best attention. *at cost,*

Hoping to hear from you on this subject, I remain with kindest regards,

Yours Faithfully,

H. Schubel

*Randolph gave this to
Prosser & have him watch
for the material*

Warren, Ohio, April 16, 1901.

Laboratory Thos. A. Edison,

Orange, N. J.

Dear Sirs:-

Yours of the 10th inst., at hand and noted. I have written the Superintendent of our mine to forward us at once some gravel, and as soon as it is received will forward fifteen pounds of it, properly marked. It will probably be two or three weeks before we receive it, but as soon as it arrives will forward it and advise you also. If your machine works satisfactorily, we may be able to do some business with you.

Very Truly, Yours,

S. B. Palm,
Vice Pres. Vermejo Gold Mining
Co.



*Balance
going to give us one
sample - Let me know
when 10 days are up
E.*

NEWARK, N.J.

5/1/1901.

Mr. Thomas A. Edison,
Orange, N. J.

Balance

Dear Sir:

Referring to your order handed the writer this afternoon,
we take pleasure in advising you, that we expect to be able to for-
ward you within the next ten days, two sample castings, which we
trust will enable you to make such arrangements as you have in view.

Very truly yours,

BENJAMIN ARHATZ & COMPANY

By *Leah B. Johnson*

62 Battery

[PHOTOCOPY]

Edison, N.J., Nov., 25th, 1901.

List of chemical apparatus in box marked #3.
Shipped to
Thomas A. Edison,
Orange, N.J.

---ooc---

- 2-1 gallon flask #6344A.
- 11- #6270 cast tubes 5/8" x 5"
- 2 funnel tubes,
- 1- 13/16" glass tube 2' long,
- 1- 9/16" glass tube 2' long,
- 1- 1/2" glass tube, 2' long,
- 34 odd sizes of glass tubing 3" to 12" and 1/4" to 3/8" dia.
- 18 pieces 1/8" to 1/4" dia. x 6" to 16" solid round glass.
- 20 pieces 0 solid glass,
- 2- 1 qt. flasks #8717,
- 24- 16 oz. flasks #8717,
- 1- 1 qt. #6449 Woulff's bottles,
- 5- #9366 triangles 3",
- 1- 6" #6389 funnels,
- 1- 8" #6389 funnels,
- 1- 3-1/2" #6389 funnel,
- 6- 6" #6349 funnels,
- 1- 1/2 gal #6402 globe shape glass stoppered funnel,
- 1- 20 oz. #6175 dishes evaporating,
- 4- small dessert dishes,
- 18 butter dishes,
- 2 pinch cocks,
- 5 pkgs No. 590 x 12-1/2 C.M filtering paper,
- 2 " 100 sheets each 8" filtering paper,
- 1 " 100 sheets each 10" filtering paper,
- 1- 4 oz. round wood box, chromium oxide hydrate,
- 12 4 " " manganese sulphate,
- 4- 1 lb pkgs sodium carbonate C.P. powdered,
- 1- bottle of solution, (not labeled)
- 1- bottle of acid, (not labeled).

[PHOTOCOPY]

Edison, N.J., Nov., 22nd, 1901.

List of chemicals in box marked 23.

Shipped to
Thomas A. Edison,
Orange, N.J.

1-2 gal. glass bottle,	1/2 full,	marked,	arsenic oxalate C.P.
1-1 1/2 "	"	full, marked,	carbonate soda CP.
1-2 "	"	1/2 full, marked,	(not labeled)
1-1 1/2 "	"	1/2 full, marked,	ammonia sulfide M.H. & M.S.,
1-1 "	"	full, marked,	Buffalo 30th water,
1-1 1/2 "	"	full, marked,	acetic acid,
1-1 "	"	1/4 full, marked,	(not labeled),
1-1 qt.	"	1/2 full, marked,	M.H. & M.S.,
1-1 "	"	1/2 full, marked,	benzene,
1-1 "	"	3/4 full, marked,	bottled 1000 oil,
1-1 "	"	1/2 full, marked,	phosphoric acid 50 %
1-1 "	"	full, marked,	blue vitrol,
1-1 "	"	3/4 full, marked,	ammonium chloride C.P.
1-1 "	"	full, marked,	oxalic acid,
1-1 "	"	1/2 full, marked,	potassium ferrid-cyanide,
1-1 "	"	2/3 full, marked,	potassium permanganate X. & N. O.
1-1 "	"	full, marked,	(not labeled)
1-20 oz.	"	1/2 full, marked,	wood tar,
1-16 "	"	3/4 full, marked,	(not labeled)
1-20 oz.	"	1/2 full, marked,	carbonate soda C.P. & M.S.,
1-20 "	"	1/2 full, marked,	potassium ferrid-cyanide,
1-20 "	"	3/4 full, marked,	acetate lead, com.
1-20 oz.	"	full, marked,	stearic acid,
1-20 "	"	2/3 full, marked,	carbonate soda,
1-20 "	"	2/3 full, marked,	(cannot read label)
1-20 "	"	full, marked,	(cannot read label)
1-20 "	"	2/3 full, marked,	tin tung.
1-12 "	"	full, marked,	metal mark 52
1-16 "	"	full, marked,	arsenic molybdate, C.P.
1-12 "	"	full, marked,	oxalic acid 1.2.02, C.P. & M.S.
1-12 "	"	full, marked,	sod hyposulphate, C.P. 1/2
1-12 "	"	full, marked,	Fe It 2,
1-12 "	"	2/3 full, marked,	salpho cyanide potass,
1-12 "	"	1/2 full, marked,	phenothale alkaline,
1-12 "	"	full, marked,	sodium phosphate C.P. 1/2
1-12 "	"	full, marked,	sodium succinate merk,
1-12 "	"	full, marked,	potassium bisulphate merk,
1-12 "	"	full, marked,	oil nighbone,
1-12 "	"	1/2 full, marked,	arsenic oxalate M.H. & M.S. 1/2
1-12 "	"	1/2 full, marked,	sodium marked with x
1-8 "	"	1/2 full, marked,	(not labeled)
1-8 "	"	3/4 full, marked,	(not labeled)
1-8 "	"	1/2 full, marked,	carbolic acid,
1-8 "	"	full, marked,	potassium nitrate C.P.,

[PHOTOCOPY]

Material in box #2,

continued, #2.

1- 8 oz. glass bottle, full, marked, naphthalene,
1- 8 " " " 1/8 full, marked, potassium sulphate C.P.,
1- 6 " " " 2/3 full, marked, barium chloride, C.P.,
1- 6 " " " 2/3 full, marked, potassium Bi-chloride,
1- 6 " " " 1/3 full, marked, bromine,
1- 4 " " " full, marked, phenolphthalein mark,
1- 2 " " " 1/8 full, marked, poison Hg.,
1- 2 " " " 1/4 full, marked, mercury 1/2#,
1- 2 " " " 1/2 full, marked, calcium oxide,
1- 2 " " " 1/2 full, marked, barium acetate,
1- 2 " " " 3/4 full, marked, P.P. 3:1:0: (face form M.N.),
1- 2 " " " 1/8 full, marked, mercurous chloride,
1- 2 " " " 1/2 full, marked, sodium meta phosphate,
1- 3 " " " 2/3 full, marked, limgstic acid,
1- 2 " " " 2/3 full, sodium nitrate,
1- 2 " " " 1/2 full, marked, copper oxide,
1- 2 " " " 1/8 full, marked arsenic acid,
1- 2 " " " 1/3 full, marked, wzriuz acetate,
1- 2 " " " 3/4 full, marked, cobalt chloride,
1- 2 " " " 1/4 full, marked, arsenous acid,
1- 2 " " " full, velva -- cine,
1 wood box, nitrate silver,
1- 5 gal. jug., containing 1 pt liquid, (not labeled)



ORIGIN: CHICAGO
"FOUNDER'S"

*Answered
Dec 12-1901*

ALLIS-CHALMERS CO.,

SUCCESSOR TO
THE EDWARD P. ALLIS CO., MILWAUKEE.
FRIGER & CHALMERS, CHICAGO.
DAVIS IRON WORKS, CHICAGO.
EDISON MFG. CO., SCHENECTADY.

NEW YORK OFFICE,
Broad Exchange Bldg.

QUOTATIONS SUBJECT TO CHANGE WITHOUT
NOTICE. ALL AGREEMENTS ARE CONTINGENT
UPON REPAIRS, ACCESSORIES AND OTHER DE-
TAILS UNLESS OTHERWISE STATED. OUR CON-
TRACTS OR AGREEMENTS ARE SUB-
JECT TO THE APPROVAL OF AN OFFICER OF
THE COMPANY.
THE ORIGINAL OF THIS LETTER REMAINS IN
OUR FILES.

New York, Dec. 3rd, 1901.

Mr. Thomas A. Edison,
Orange, N. J.

*As you could not fill the
order in a reasonable time*

Dear Sir:

*I made one myself for about
1/3 the money Edison*

On November 7th we had the pleasure of quoting you on
a small furnace with some fittings. Not having heard from you since
we would like to know if you still wish these quotations held open.

In going over our letter we notice a typographical error
which might possibly have some bearing on your not placing the order,
viz.: the three #3 slag pots should be quoted at \$72.00 instead of
\$726.00.

We also note that the price on the Green blower has been
given you as a price on a No. 1, while it is really the price of a
No. 2. We do not exactly know how this mistake occurred, but the
price on a No. 1 Blower should be \$190.00 instead of \$224.00.

Hoping that you will pardon these mistakes, and also
hoping to hear from you, we remain,

Yours truly,

ALLIS-CHALMERS COMPANY,

M. A. C.

Per *[Signature]*

[CA. 1901]

Give Ballant 55 Lamps for Lamp
bank - "Experiment Dundee and
Maguatic Separata" - chq to
London Syndicate - 1087.

Write Address "Edison, N.Y. N.J."

SEP 12 1902

*From the Laboratory
of
Thomas A. Edison.*

Subject _____

Orange, N.J. Sept. 10th, 1902.

Mr. Thomas A. Edison,
Stewartsville,

N.J.

Dear Sir:--

Enclosed please find sketch of a special Fire Brick
of which Mr. Chapman wants 200.

Also find enclosed quotations from Sayre & Fisher Co.,
Sayreville, N.J. and Henry Maurer & Son, of New York, and also an
order for same, which please O.K. if it meets with your approval,
and return quotations with order and oblige,

Yours truly,

*Revised
order in*

F. B. Donovan
(164)

Mallory better order the

(Enclosures)

*200 - say 225 for breakage
of Maurer - as he does best
work - Have them packed
in 66's - 5*

Lab- equip



Andover, Mass. U.S.A. Oct. 15, 1903

Mr. Thomas A. Edison,
Orange, N. J.

Dear Sir:- We are in receipt of your favor of the 12th. and enclose you herewith sample of the thinnest rubber tissue which we have made. This is about 6/1000 thick according to our estimate. It may be possible to get this down to a thickness of 3/1000 but it would be an experiment with us and would probably cost \$3.00 to \$5.00. In what quantities do you expect to use it? Of course if you could use in large quantities we would be glad to get it up for you, but if you only wish to use a few pounds you will readily understand it would hardly pay us to go to this expense. We do not believe it would be possible to get it down to less than 3/1000 of an inch. What width do you desire this? We should prefer not to make it over two feet in width, if we try it at all.

Awaiting your reply, assuring you if we can help you we will be glad to do so, we remain

Yours truly,

TYER RUBBER CO.

c/L

The sample sent is seven thousandths thick, we want it not more than three thousandths, we can use it in sheets as narrow as two and half inches wide - ordered just twenty dollars for half pound of three thousandths - Can say how much we will need in future as it depends upon the exact service we want

get the three thousandths



Andover, Mass. U.S.A. Oct. 22, 1907
F. S. Ott

Mr. Thomas A. Edison,
Orange, N. J.

Dear Sir:- We duly received your favor of the 19th. and are sending you today about 1/2 lb. of tissue rubber, which as we estimate it, is between three and four thousandths. This you will note, has quite a number of small pin holes. You speak however, of using this in small pieces, and we believe it might be possible for your experimental purposes, to cut out what you needed from these pieces. If not, undoubtedly by preparing and selecting stock, we could make a sheet, free from all imperfections, but there would be a delay of probably two weeks in getting the same ready. We are accordingly sending this. If not satisfactory, kindly return, and we will make for you a perfect sheet. We should also be glad at the time to hear whether this meets with your requirements in every particular; that is, as to quality and thickness.

Yours truly,

C/M

TYER RUBBER CO.

L. Carlton.

Answered
Oct 29 1903

[ATTACHMENT]



Tyer Rubber Co

Rubber received I find that the average Caliper is ~~4~~ four and a half thousandths. I am now using five thousandths and this is so slight a difference that the rubber sent will be of little value - Can't you manage to get it down to three thousandths per holes will not matter providing I can ~~get~~ cut pieces out $1\frac{1}{2}$ inches in diameter that has none in, I will return the sample or you can bill it to me at regular - not the special price I offered for three thousandths,

Yours Truly
TAS

S. STERNAU
L. STRASSBURGER.

IF IT BURNS, ALCOHOL WE MAKE IT

NEW YORK & BROOKLYN
TELEPHONE CONNECTION.

CABLE ADDRESS
STERNAUCO, N.Y.

44-29-8
Chasing Dishes,
Fancy Bottles,
Coffee Pots, Trays,
Bar Silver, etc.

DEALERS IN
Household
Articles,
Metal Ware,
etc.



S. Sternau & Co.

METAL WARES

BRASS, COPPER, SILVER

FACTORY
105 PLYMOUTH ST.
BROOKLYN.

NEW YORK SAMPLE ROOM
304 CHURCH ST. CO., NEWARK, N.J.
SS/LRJ.

Brooklyn, N. Y. February 10, 1905.

Mr. J. P. Ott,

C/o Edison Laboratory,
Orange, N. J.

Dear Sir:-

Again referring to conversation had with your brother to-day, we are prepared to furnish you with the samples made of steel which you have left with us, making no charge for these samples, but there will be a charge of \$60. for tools to draw off the shell which you have left with us in brass.

If the steel will answer your purpose as well as the sterling nickel, it would, of course, not be advisable for you to make these out of sterling nickel.

If, however, you care to place the order with us for the 300 pieces Sterling nickel, we are willing on the initial order, to charge you only \$15.00 for tools, and 50¢ each for the 300 shells, subject to a further reduction provided we can see our way clear to do so after having made these up.

Awaiting your reply, we are,

"Quotation."

Yours very truly, *S. Sternau & Co.*

P. S. We will make you a price in steel, you to furnish the material, at 15¢ each in quantities of 300, and in larger quantities we believe the price could be reduced to about one-half, at least we should say, not less than one or two thousand at a time.

[ATTACHMENT]

Order 300 little cells of steel which
will work ~~electrically~~ + ~~200 h. a. h.~~
we will furnish +. The price
to be \$60 for tools + 15 c for each
cell. any further orders given
we are not to pay for more tools

Edison

Orange T. B. 11/85

Mr. Hearn
195 Clinton St
Brooklyn

Dear Sir

Your pleasure in 300
shells as sample we sent
you herewith $4\frac{1}{2}$ in high 2 in
diameter at the price
you stated 10^{cts} a piece
and \$60⁰⁰ for tools, provided
there is no further charge
for tools, in placing a
second order, please the
same to Edison Storage Battery
Co, please make this

order as we are somewhat
for the want of them

Yours truly

J. A. Edison

Per J. C. Ott

GEORGE MERCK

John - 29 1/2

WORKS,
ST. LOUIS
and
RAHWAY, N. J.

E. MERCK'S
DARMSTADT
LABORATORIES
Founded 1668

MERCK & CO.
MANUFACTURING CHEMISTS
NEW YORK.

June 1/05

*Answered
June 6 - 1905.*

Edison Storage Battery Co.

Orange

N.J.

Gentlemen:-

We thank you for your order of the 31st ult., which has had our prompt attention. We regret, however, that we were unable to include the 1 lb. Sodium Binoxalate, as we do not carry the article in stock. Our Laboratories manufacture the article and we shall be glad to import it for you. Please advise us if we shall do so.

Yours truly,

Attested: *mm*

MERCK & CO.

*Binoxalate is the acid Oxalate,
(Salt of Sorrel) I find every
Drug store in Orange keeps it
in stock - Do you consider
it so rare that you have to
import it, Edison*

Geo. Merck
GEORGE MERCK

MERCK & CO.
MANUFACTURING CHEMISTS
NEW YORK,

WORKS:
ST. LOUIS
and
RAHWAY, N. J.

0/EF/

June 7/05

E. MERCK'S
DARMSTADT
LABORATORIES
Founded 1668

Mr. Thomas A. Edison

[Signature]
Orange,
N.J.

Dear Sir:-

Replying to your favor of the 6th instant, we would say that Salt of Sorrel (POTASSIUM BINOXALATE), having the formula $\text{KHC}_2\text{O}_4\cdot\text{H}_2\text{O}$, is an entirely different article from SODIUM BINOXALATE (Sodium Acid Oxalate), having the formula NaHC_2O_4 . As we advised you in our previous communication, we do not carry Sodium Binoxalate in stock, the article being in very limited demand, and we think there is some misunderstanding in your statement that you find it in every drug store in Orange. We shall, however, ^{still} be glad to import any quantity of the article that you may desire.

Awaiting your further advices in the matter, we are,

Yours truly,

Attested: *[Signature]*

MERCK & CO.

Henry S. Williams
N. Howland Brown
Morris Earle

Let - Egan



DEC 28 AM '90

Cable Address "Autograph"

Long Distance and Local Bell Telephone
Walnut 1-36
Keynote Telephone, Main 4-12

WILLIAMS, BROWN & EARLE

Departments

- No. 1. Engineering Instruments and Supplies
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- No. 5. Stereoscopes and Projection Apparatus
- No. 6. Microscopes and Laboratory Supplies
- No. 7. Physical and X-Ray Apparatus
- No. 8. Scientific Novelties
- No. 9. Blank Books, Stationery and Draughting Room Furniture

Importers and Manufacturers of

Optical and Photographic Instruments and Supplies

918 Chestnut Street

Philadelphia, December 27, 1908 '90

Specialties

W. & E. Field Glasses
Prism Binoculars
Oculists' Prescriptions for Glasses
Standard Thermometers and Barometers
Photographic Outfits and Supplies
Photo Developing and Printing: Picture Framing
Commercial Photography
Sole Agents for Keuffel & Esser Co.,
and R. & J. Beck, London.

Mr. Thomas A. Edison,
Orange, N. J.

Dear Sir:

We are in receipt of your favor of the 26th inst. and beg to advise you that we can ^{also to be used the} supply you with a Beck binocular microscope as illustrated in the Catalogue, #156, but with plain square stage like #120. We have on hand a binocular microscope #156 with the circular stage, which we can offer to you with objectives 1", 2/3" and 1/2" and one pair of eyepieces at \$82.50. This instrument is in first class condition but is slightly shop-worn, and for this reason we have placed the extremely low price upon it. No carrying case is included.

Under separate cover we are sending you later copies of the Beck catalogue. To estimate costs of these instruments, count on the pound as \$7.60 and the shilling as 38¢.

We would attach a plain square stage to the instrument we have in stock without additional cost. There would be no substage appliances supplied.

We have on hand several thousand slides, covering all subjects and would particularly call your attention to our bo-

*Tell him to ship the
Binocular by express & FOR
will buy it if not will
return & pay all charges*

3 Beck binoculars named

S

Mr. Thomas A. Edison,

#2.

tanical specimens, list of which we enclose. We can supply this set of forty-eight slides at \$15.00.

We trust that we may be favored with your order, to which we can promise our prompt and careful attention.

Very truly yours,

Williams, Brown & Earle,

per 

Henry S. Williams
N. Howland Brown
Morris Earle



Cable Address "Autogras"

Long Distance and Local Bell Telephone
Main 1-58
Keystone Telephone, Main 5-18

WILLIAMS, BROWN & EARLE

Departments

- No. 1. Engineering Instruments and Supplies
No. 2. Spectacles, Eye Glasses and Thermometers
No. 3. Photographic Instruments and Supplies
No. 4. Photo Developing and Printing: Blue Prints
No. 5. Stereoscopic and Projection Apparatus
No. 6. Microscopes and Laboratory Supplies
No. 7. Physical and X-Ray Apparatus
No. 8. Scientific Novelties
No. 9. Blank Books, Stationery and Draughting Room Furniture.

Importers and Manufacturers of

Optical and Photographic Instruments and Supplies

918 Chestnut Street

Philadelphia, Dec. 30, 1905. 190

Specialties

W. B. & E. Field Glasses
Prism Binoculars
Oculists' Prescriptions for Glasses
Standard Thermometers and Barometers
Photographic Outfits and Supplies
Photo Developing and Printing: Picture Framing
Commercial Photography
Sole Agents for Kueffel & Esser Co.,
and R. & J. Beck, London.

Mr. Thomas A. Edison,

Orange, N. J.

Dear Sir:

We are in receipt of your favor of the 28th inst. and have forwarded by express the Beck Binocular microscope together with objectives as per our quotation of the 27th inst.

In assembling this instrument we have included a mirror should you at any time desire the instrument for reflected light. The 1/2" objective supplied is of the better grade Beck series, having a large aperture and it is invaluable for binocular work.

We trust that the instrument will arrive safely and prove satisfactory.

Very truly yours,

Williams, Brown & Earle,

per *[Signature]*

*The microscope arrived
all right - send another just
like it with 1/2 inch & 2/3
objectives - send also
for both & I will
forward check
Yag*

Sub-eying

Telephone Nos. { 1507
 { 1508 Madison.

W. H. SPELMAN,
J. P. BLAIR.
W. H. SPELMAN,
Contractor for Plumbing,
130 WEST 28th STREET,
WORK DONE IN ANY PART OF THE U. S.

B.T. Edison
DEC 21 1890

NEW YORK,

December 19, 1901

*Day I am out of
Commenced by
now can go into
Chambers*

Mr. Thomas Edison,

Llewellyn Park, Orange, N. J.

Dear Sir:-

I take the liberty of enclosing you a blue print in connection with a resisting manhole frame and cover. The cut shows a style of manhole which will resist surface water. The Interborough R. R. Co. has one in place at Fifty-eighth Street near Ninth Ave., New York City, and think very well of it, and we have endorsements from two other companies in Massachusetts.

The N. Y. Edison Co. has one in their Yard at Fortyfirst St. and East River, delivered at the request of Mr. Stephenson, Engineer, of the Duane St. office.

I have taken the liberty of communicating with you and enclosing you this print, and can refer you to any of the leading Engineers in New York City as to my standing. I would like very much indeed to take this matter up with you at your convenience, as I am firmly convinced it is indispensable.

We have other data which might be interesting to you. I would like very much to hear from you.

Yours truly,

W. H. Spelman
B

Lab. Equip. Still



Eimer & Amend,
MANUFACTURERS & IMPORTERS OF
CHEMICALS AND CHEMICAL APPARATUS.

WHOLESALE **DRUGS** RETAIL

205 to 211 THIRD AVE.

CORNER OF 18TH ST.

#5

New York, June 3, 1908.

Received
JUN 4 - 1908

Mr. Thos. A. Edison,
Orange, N. J.

Dear Sir:

The Jewell Water Improvement Company of Chicago, informed us that they wrote you on the 29th ult., quoting on their Jewell Steam Still #430, 10 gallons per hour, and #440, 15 gallons per hour. We wish to state that we are the eastern agents for the Jewell Water Improvement Company, and should you decide to place an order for either of these stills, we should be pleased to receive same. We quote you the same price as the Jewell Water Improvement Company, and trust we may be favored with your order, which shall have our prompt attention.

Very respectfully,

EIMER & AMEND,

per R M Miller

S.U.

Your quotations were quite different from Jewell's so high we decided to consider a still of our own

JAG

No. 14456 *hab-equip*

CONTRACT.

NEW YORK.

Nov. 5, 1908.

SOLD TO Thomas A. Edison, Esq.,
Orange, N.J.

Nov 11/17
1908

100 lbs. Block Balata Rubber, ex store, @ 42¢ per lb.

Terms: Net cash in ten days from date of delivery here. Payable
in New York or Boston funds.

GEO. A. ALDEN & CO.

for Geo. A. Alden

*ask him to hurry shipment
as I want to try an experiment at a mill
which shuts down for 2 months
within 8 days — E*

605 DUN BUILDING.
290 BROADWAY.

December 21st, 1908

Mr. P. Brady,
Laboratory.

Dear Sir:

You recently sent me requisition covering 2,000 time sheets for the Laboratory. I sent the requisition for printing them to the Essex Press of Newark, stipulating that it was to be billed at \$2.35 per thousand. They have just replied that it will be impossible to fill the order on this basis and that their charge for 2,000 will be \$5.75.

You undoubtedly appreciate that the price of \$2.35 per thousand which I gave you over the telephone recently covered 5,000 copies of the Time sheets for the Edison Storage Battery Company. The increase in the Essex Press price is due to the decreased quantity.

Kindly advise me whether I shall fill your order at \$5.75.

If you can use 5,000 copies of the form we will be glad to furnish them for \$10.75.

Yours very truly,
L. W. McCarty

AMZ

OK
5000
PB

NATIONAL PHONOGRAPH COMPANY

Catalogue.

April 5th. 1909.

The Concrete Steel Co.,

29 Broadway,

New York City.

Gentlemen,---

We would be pleased to receive your catalogue and further literature you have published concerning reinforced concrete, etc.

We are the engineers for the Edison One Day House, designing and experimenting with the view of realizing Mr. Edison's idea, and naturally are interested in anything pertaining to Concrete Construction.

Yours very truly,



Mech. Eng'r,

Address:

Messrs. Henry J. Harms, Jr. & George E. Small, Mech. Eng'rs.

Room # 31, Edison Laboratory,

West Orange, N.J.

HJH/JCH.

ALL AGREEMENTS SUBJECT TO DELAYS CAUSED BY FIRE, ACCIDENTS,
STRIKES OR OTHER CAUSES BEYOND OUR CONTROL.

CABLE ADDRESS: CONSTEEL.

THE CONCRETE-STEEL COMPANY



HAVEMEYER STEEL BARS FOR REINFORCING CONCRETE

DESIGNS
SPECIFICATIONS
ESTIMATES

20 BROADWAY, NEW YORK

April 7th 1909.

Mess. H. J. Harms, Jr. & G. E. Small, Mech. Eng.,
Room #31, Edison Laboratory,
West Orange, N. J.

Dear Sirs:-

Replying to yours of the 5th inst., we are pleased to send you under separate cover a catalogue and other printed matter descriptive of the Havemeyer Bar, which we would be glad to have you consider in connection with the work you have in prospect.

You will find these bars the most economical for use in concrete construction. They have a uniform cross section, no metal being wasted in securing the strongest possible mechanical bond. They will bend readily in any desired angle and can be easily measured. Our bars are rolled from the very best quality new billet steel.

If there is any further information you desire, please call on us.

Very truly yours,

THE CONCRETE-STEEL COMPANY.

J.F.H. R.

J. F. Havemeyer
President.

NATIONAL PHONOGRAPH COMPANY

Quotations.

July 11th. 1909.

Chicago House Wrecking Company,
West 35th. & Iron Streets,
Chicago, Illinois.

Gentlemen,---

Received your letter with inclosure, and have gone over same carefully.

Wish to say that we cannot place order with return mail as you expect. We are now completing the moulds, etc for the model house and will equip this complete for exhibition. It is only after actual building operations commence, that orders can be placed. The operation will not stop with 100 houses but will acquire, very soon, gigantic proportions; we want to know beforehand, what the house will cost, complete, and on account of the very large number required of everything, expect rock bottom prices, and your price seems to high yet.

As stated before, this whole matter is in experimental stage yet, and we are just beginning to study up different things connected with it. If we cannot buy heating plant and plumbing at better prices, we simply will manufacture them ourselves.

Yours very truly,

RJH/JCH.

Mechanical Engineer.

RECEIVED

JOSEPH O. KIESLICH,

PAINTER AND DECORATOR,

REMOVED TO 315 W. 35th ST.
PHONE 1771 38th ST. 462 EIGHTH AVENUE.

Estimates Furnished.

New York, July 21st 1909

Mr George E. Small
Dear Sir:

I saw a cut of
The Edison Cement houses in The
Sunday Review and was so
taken up with the idea that I
thought of having one built for
myself. I spoke to Mr Morris of
The Edison Cement Co at 1133 Broadway
and asked him the particulars
of the house. He referred me
to you and told me that you
would give me all information
as if you could be kind enough
and give me particulars and put
me on the way of having one built
I would be very thankful to you
I have a piece of ground 40 x 100
in Flatbush South Brooklyn
one of the finest parts on Ocean Ave
and Kings Highway about 1/2 mile
this side of Sheepshead Bay Race Track

700 BROADWAY, 2ND FL.

JOSEPH O. KIESLICH,

PAINTER AND DECORATOR,

REMOVED TO 315 W. 35th ST.
PHONE 1771 36th ST. 462 EIGHTH AVENUE.

Estimates Furnished.

New York, 190

The ground is of the finest
Red Sand procurable which
I understand is an item in
the mixture as that end of it
is in my favor
Trusting you will be kind
enough to give me the above
information and thanking you
in Advance

I Remain
Respectfully
Joseph O. Kieselich

ES DEPT.

ALL ORDERS ACCEPTED AND CONTRACTS MADE ARE SUBJECT TO DELAY OR REJECTION BY OTHERS, THEN OR OTHER UNAVOIDABLE CAUSES.
ALL EXTENSIONS ARE MADE SOLELY FOR THE CORRECTION OF TELEGRAPHIC ERRORS.

CAPITAL STOCK AND SURPLUS
\$1,000,000.00

CHICAGO HOUSE WRECKING CO.

GENERAL MERCHANDISE, SHARPS, RECEIVERS AND MANUFACTURERS' SALES



CABLE ADDRESS
"WRECKING" CHICAGO
A. B. C. CODE

OUR PLANT COVERS 30 ACRES
WE BOUGHT THE FIFTY MILLION DOLLAR LOUISIANA PURCHASE EXPOSITION

TELEPHONE YARDS 1900.

IN REFERENCE TO THIS LETTER MENTION

P.M., STEPHEN, I.M. CHICAGO, U.S.A. July 22, 1909.

Geo. E. Small & Henry J. Harms, Jr., Mech. Engs.

Room #31, Edison Laboratory,

West Orange, N. J.

Dear Sirs:-

Replying to yours of the 11th inst. We think we will be able to get this price on the complete steam heating plants for this building down to.....\$200.00 per plant, F.O.B. cars Chicago, as outlined and covered by the specifications submitted you in our last letter. This, you understand includes the plant complete and all brand new material. This of course on condition that you will place orders in quantities as given in your letter, that is by the hundred.

In regard to all of the Plumbing Material, we also wisht0 advise that we think we will be gble to get this plant down to something like \$75.00, including all the material to complete the entire installation of the material above the ground line. This price is also F.O.B. cars Chicago and is based on orders in large quantities, as mentioned in your letter.

However, before lining up any kind of exact proposition on this, we think we would prefer to have a little further suggestions from you, as to what your own tastes in the matter are. Go over our catalog carefully and make a selection from the various plumbing fixtures listed and give us some sort of line on what kind of fixtures you think would be the most suited for these houses. If you will make up a list in this way, we will be glad to make you our bedrock figures on the complete equipment and give you quotations on orders in various quantities.

Let us know if you would insist on using absolutely "A" grade plumbing fixtures; or, if you would consider using fixtures that are slightly damaged in the enamel, which we will carefully repair. Fixtures in this class, we could make you a very low price on and at the

same time you would be getting fixtures that would present a very expensive appearance and you would of course get a much better quality all the way through with the exception of the slight blemishes in the enamel, which, as before explained we repair as careful as it is possible for us to do so and in most cases, these defective places can scarcely be noticed. We guarantee these fixtures to be for all practical purposes, as good as strictly "A" grade fixtures in every way.

These fixtures, you understand are what is known as "B" grade fixtures. They are absolutely brand new fixtures, having never seen any service whatever, but they probably received some slight defect or rough handling in shipment and we classify them as "B" grade,

We of course can furnish you strictly "A" grade fixtures if you want them. We simply called this matter to your attention so that you would know all the facts and you can advise accordingly.

We trust you will let us hear from you again in the matter as soon as you are ready to take action and we assure you we will be glad to make you the very lowest price we possibly can.

We would like to be gavored with some of this business. Our latest general catalog and our special heating catalog are being mailed to you under separate cover.

Yours very truly,

CHICAGO HOUSE WRECKING CO.

Lab. equip

ESTABLISHED 1815.

ARNOLD, HOFFMAN & CO., INC.
PROVIDENCE, NEW YORK.
BOSTON, PHILADELPHIA &
CHARLOTTE, N.C.
U.S.A.

EDWARD E. ARNOLD, PRES.
WILLIAM H. HOFFMAN, TREAS.
HENRY A. HOFFMAN, SEC.

IMPORTERS OF

INDIGO, DYE-STUFFS,
STARCHES, GUMS.

HAROLD H. HALL
GEORGE E. FREDERICK, JR.
MANAGER.

SOLE IMPORTERS IN SMALL QUANTITIES
NEW YORK, N.Y.
100 WALL STREET, ARNOLD, HOFFMAN & CO., INC.

Feb. 28th, 1910 (HS)

Mr. Thomas A. Edison
Orange, N.J.

Dear Sir:

Referring to shipments of

Liquid Chlorine

from the Castner Electrolytic Alkali Co., Niagara Falls, N.Y., for whom we are selling agents, they request that you place a standing order with them covering your probable requirements so that they can arrange to take care of these regularly. We understand they will be about 2 drums a week for the present.

Regarding the cylinders, they state that these are somewhat different from those they use and they do not know what their capacity is. If possible, will you please advise them about what the cylinders are to be charged. If you have not a record of the pressure, please advise them what weight of

Liquid Chlorine

these cylinders would contain when you received them originally from abroad.

We regret having to trouble you, but the works need this information which we trust you will be able to furnish them.

Awaiting your reply, we remain,

Yours truly,

Arnold, Hoffman & Co., Inc., Agents.

Harold H. Hall

Ans 3/9/10

They are not through our efforts & can only take care of them in small quantities this?

At date he asks for from Mr. Edison Do you want to

H. H. Hall

E

Lab. Equip



TRADE MARK
Main Office and Factory: Camden, N. J.
SAN FRANCISCO, 24 Beale Street

LONG DISTANCE TELEPHONE

The New Jersey Asbestos Company

Manufacturers
of all Kinds of

ASBESTOS GOODS

59-61 PEARL STREET

NEW YORK July 23, 1910.

Thomas Edison, Esq.,

Orange, N. J.

Dear Sir:-

ans 7/27/10
We want plain asbestos of different quality & price ground up but not put into any trade shape
We are in receipt of your phone message, requesting us to forward you 5 oz. samples of all the grades of Ground Asbestos & Asbestos Fibre which we handle.

The field for supplying you with these samples, is so large, that we would ask you to kindly give us some idea as to what you want to use this material for, and we think we will be able to send you samples of Asbestos which will be a good deal more useful to you, than if we sent them at random.

Thanking you for your inquiry, we remain,

Yours very truly,

The New Jersey Asbestos Co.

A. L. FitzGibbon
N. Y. Manager.

PATENT SERIES

The Patent Series for 1899-1910 consists of: (1) one caveat (preliminary patent application) from 1907 relating to Edison's concrete house; (2) numerous case files for Edison's U.S. patent applications; and (3) a patent application book containing summaries of specifications by Edison and other laboratory employees for the period 1909-1912.

The Patents record group at the Edison National Historic Site includes an extensive set of case files relating to Edison's foreign patent applications. In addition, there are numerous patents by other inventors, many of which were subsequently assigned to Edison's companies. A finding aid is available. A related set of case files for Edison's U.S. patents can be found in the National Archives (Record Group 241, Records of the Patent Office). A complete set of the 1,093 U.S. patents issued to Edison appears in *Thomas A. Edison Papers: A Selective Microfilm Edition, Part I*, reels 1 and 2.

Numbering Systems for Edison's Patent Applications

Folio Numbers. These numbers were assigned by patent attorneys Richard N. Dyer and Frank L. Dyer and by the various Dyer partnerships to applications filed on behalf of Edison and other clients. Folio numbers generally appear on the upper left corner of the application covers. They can also be found on other patent-related documents such as Patent Application Book, PN-09-01-21. There are two series of folio numbers: one beginning in the 1880s and continuing through 1901; the other beginning in the early twentieth century and continuing into the 1930s.

Edison Case Numbers. These numbers, which are often preceded by the letter "E," were also assigned by Edison's patent attorneys, beginning in the late 1870s. Unlike the folio numbers, the case numbers were used exclusively for Edison's applications. Case numbers generally appear on the application covers and can also be found on other patent-related documents such as the patent application casebooks published in *Thomas A. Edison Papers: A Selective Microfilm Edition, Part II*. The case number system was discontinued in 1905.

Serial Numbers. These numbers were assigned by the U.S. Patent Office to applications filed by Edison and other inventors. A new sequence of numbers was used for each year. Serial numbers generally appear on the upper right corner of the application covers and on the correspondence between Edison's attorneys and the Patent Office. They can also be found on other patent-related documents such as Patent Application Book, PN-09-01-21.

Patent Numbers. These numbers were assigned by the U.S. Patent Office to successful applications by Edison and other inventors at the time the patent was formally issued.

Caveats

Until 1910 the U.S. Patent Office permitted an inventor to file an official notice regarding work in progress. Caveats were valid for one year and could be renewed from year to year upon payment of a fee. If another inventor subsequently filed an application for a similar invention, the first inventor was so notified. Although Edison filed numerous caveats during the 1870s and 1880s, there is only one extant caveat from the period 1899-1910.

The caveat, which was executed on November 27, 1907, is entitled "Cement Buildings and Process of Constructing the Same." In addition to the typed specifications, the folder contains a draft in Edison's hand; two blueprint drawings; and a published letter to the *Scientific American* by H. J. Le Comte, an inventor who claimed to have anticipated Edison's idea for a concrete house.

Folio No. **355**

Serial No.

Applicant.

Address.

Thomas A Edison *Llewellyn Park*

Title *Cement Building & Process of Constructing the Same*

Filed *November 29, 1907*

Examiner's Room No

Assignee

Ass'g't Exec.

Recorded

Liber

Page

Patent No.

Issued

ACTIONS.

- | | |
|--------------------|----|
| 1. <i>See 1907</i> | 16 |
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| 15. | 30 |

FRANK L. DYER,

Counsel,

ORANGE, NEW JERSEY.

first in
cost for
Cement Houses

Concise

Received
Nov 14/09
S. L. D.

The object of this invention is to mould a complete dwelling
at one operating, the sides, roof, partitions and floors being integral
when furnished - the interior with its staving, mantle, ornamental
carving, all integral & made at the same time - thus cheapening enormously
the cost of dwelling as well as the beautifying beyond anything now possible in
so cheap a manner -

The invention consists in erecting a complete ^{quadrant wall} house of cast iron, formed of
removably connected sections bolted & dovetailed together. The whole
forming a mould, including ~~a complete structure~~ of Portland Cement
mixture especially adapted for this work is raised to the top
of the iron mould forming the house & by means of many distributing
troughs leading from a central point it made its floor around
the whole of the top & distribute the mixture evenly thus preventing
segregation of the components of the mixture - and containing
the elevating of the Cement mixture until the whole iron mould
forming the complete house is filled to the highest point -
an extension called a riser going to a higher point -

The invention further consists in placing in the space between
the iron mould, steel rods for reinforcing the concrete, such
rods being held in position by removable fingers connected
to the iron frames.

The invention further consists in providing numerous air
vents closed by filter cloth upon screens of coarse mesh so that
during the pouring of the Cement where it flows through
partitions, floors or other tortuous channels air will not
be trapped at different points to produce defective results

The invention further consists in various details of the mould
the assembling to form the complete house ~~which will~~ which will
be understood in the application of another application.

P E T I T I O N

TO THE COMMISSIONER OF PATENTS:

YOUR PETITIONER, THOMAS A. EDISON, a citizen of the United States, and a resident of and having a Post Office address at Llewellyn Park, West Orange, in the County of Essex and State of New Jersey, represents that he has made certain improvements in CEMENT BUILDINGS AND PROCESS OF CONSTRUCTING THE SAME, and that he is now engaged in making experiments for the purpose of perfecting the same preparatory to applying for Letters Patent therefor. He therefore prays that the accompanying description of his invention may be filed as a caveat in the confidential archives of the Patent Office, and he hereby appoints Frank L. Dyer (Registration No. 560), of Orange, New Jersey, his attorney, with full power of substitution and revocation, to transact all business in the Patent Office connected therewith.

Thomas A. Edison

SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

BE IT KNOWN, that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, West Orange, in the County of Essex and State of New Jersey, have invented an improvement in CEMENT BUILDINGS AND PROCESS OF CONSTRUCTING THE SAME, and desiring further to mature my said invention, file this my caveat therefor and pray protection of my right until I shall have matured my invention.

The object of my invention is to construct a building of a cement mixture by a single molding operation; all its parts including the sides, roof, partitions, bath tub, floors, etc., being formed of an integral mass of a cement mixture. This invention is applicable to buildings of any sort but I contemplate its use particularly for the construction of dwellings in which the stairs, mantels, ornamental ceilings and other interior decorations and fixtures may all be formed in the same molding operation and integral with the house itself. A house thus made is practically indestructable and is much more sanitary than houses as now constructed, and at the same time the cost of construction may be enormously decreased, and it is feasible to beautify such a house far beyond anything now possible in so cheap a manner.

To carry out my invention I first construct a complete double-wall house which forms a mold for the reception of the cement mixture. This mold is preferably constructed of cast iron sections removably connected together in any suitable manner, as by means of bolts, dowels,

etc., and adapted when the house is constructed and the cement^{mixture} has hardened, to be taken to pieces and removed and used repeatedly for the construction of an indefinite number of houses. When the mold has been constructed and erected I connect a number of distributing pipes therewith, which are preferably arranged at regular intervals at the top of the mold, the said pipes being connected to a common source of supply which may conveniently consist of a vertical riser having a funnel shaped opening for the reception of the cement mixture. I preferably use for the molding operations, a cement mixture formed of crushed stone, quartz or similar materials having particles varying from one-fourth to one-half inch in diameter, say five parts; ordinary sand, say three parts, and Portland cement, say one part, although these proportions may be considerably varied. Enough water is used to form an emulsion having sufficient fluidity to flow readily to all parts of the mold. During the setting of the mixture the water enters into chemical combination in the usual way, and if any surplus water is present it will appear as a mere dampness which quickly dries out. In order to prevent settling of the crushed material during the molding operation and before setting commences, and the resulting objectionable segregation of the ingredients, I find that by adding a comparatively small amount of fine clay to the mixture (say 20% of the cement used) the tendency to settling is greatly diminished, while at the same time the amount of water used is sufficient to give a high degree of fluidity to the emulsion and permit very successful molding. The cement being properly mixed is elevated by any suitable means, and poured into the funnel shaped open-

ing in the riser, whence it is evenly distributed by the pipes to the different parts of the mold which is gradually filled up as the cement is poured in.

To guard against the trapping of air and consequent imperfections in the molded cement when finished, I provide at various points in the molds where air is likely to be trapped, as for example, in the floors and partitions, and wherever the cement has to flow through tortuous channels, a number of air vents which will allow the escape of the air but will prevent the escape of the cement. One way in which I may construct such air vents is by making openings in the molds which are closed by an outer screen, such as a coarse wire mesh, and an inner lining of filter cloth, through which the air may readily escape but through which the cement cannot pass. Other forms of vents may, of course, be used.

While a house of this character may be made of cement mixtures alone, a much better and stronger house may be constructed if the structure is reenforced with properly formed metal reenforcing rods. Such rods, if used, may be secured to the molds in any way that will afford proper support to the rods during the molding process, and which will not prevent the removal of the mold sections after the house is completed.

In the accompanying drawing forming a part hereof, I illustrate my invention so far as it is at present completed, Figure 1 being a cross-sectional view of a mold prepared for the reception of the cement which is to form my improved house; Figure 2, a plan view of the same, and Figure 3 a cross-sectional view of one form of air vent.

The house which I have illustrated comprises a basement, two stories and a roof. 1, 1 are the molds having spaces 2 between them for the reception of the ce-

ment mixture; 3 indicates the air vents which I have shown placed only in the floors, but additional vents will of course be placed wherever it is desired to avoid the trapping of air. The vents as shown in the drawings comprise flanged openings 4 in the mold sections, these openings being closed by means of a coarse outer mesh 5 and a fine inner mesh 6 which may conveniently be made of filter cloth. The reenforcing rods are shown at 7 and are so positioned in the molds that they will give the greatest strength to the finished house. I have shown these rods supported in place in the molds by means of short sections of wire 8 wrapped about the rods, the ends of the wires abutting against the inner walls of the molds, or extending through the molds, but any convenient supporting means for these rods which will allow the removal of the molds when the house is finished may be used.

The hollow riser 9 is connected to the top of the mold by means of pipes or troughs 10, and when the cement mixture is placed in this riser it will be distributed by the pipes to all parts of the mold. I contemplate using the sand which is removed in digging the cellar, in connection with Portland cement for forming the desired mixture, thereby very materially reducing the cost of construction. Openings are preferably made along the upper surface of the side and end walls, as at 11, through which long poles may be passed, so that during the filling operation these poles may be moved up and down, with a pumping motion, to better distribute the cement mixture throughout the mold, and do away to a large extent with the possibility of an imperfect casting and the formation of air bubbles.

My invention comprises specifically:

A cement house constructed as hereinbefore set forth.

An integral cement house molded at a single operation.

The process of constructing a house which consists in making hollow molds of all its parts and pouring a cement mixture into these molds to mold a house at a single operation.

The process of making a house which consists in setting up hollow molds for all its parts, arranging reinforcing rods between the molds, pouring a cement mixture into the molds from the top thereof to form an integral reenforced cement house and thereafter removing the molds.

A mold section having an opening therein, closed by an outer layer of coarse mesh and an inner layer of fine mesh.

IN WITNESS WHEREOF, I have hereunto signed my name, this *twenty ninth* day of November, 1907.

Thomas A. Edison

In presence of:

Frank R. Byer

Anna R. Kleber

O A T H .

State of New Jersey, }
County of Essex. } ss:

THOMAS A. EDISON, the above named petitioner, being sworn, deposes and says that he is a citizen of the United States and a resident of Llewellyn Park, West Orange, in the County of Essex and State of New Jersey, and that he verily believes himself to be the original and first inventor of the improvements in CEMENT BUILDINGS AND PROCESS OF CONSTRUCTING THE SAME, described in the annexed specification.

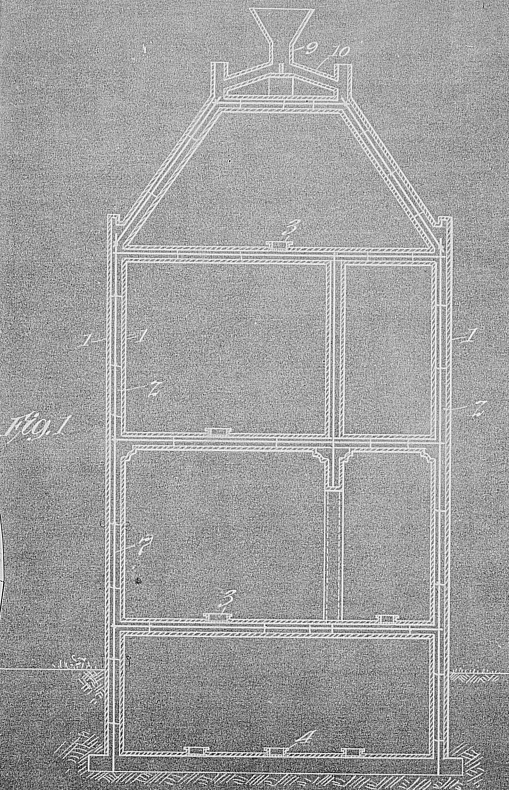
Thomas A. Edison

Sworn to and subscribed before me

this 27th day of November, 1907.

(Seal)

H. H. Dyke
Notary Public



Witnesses:
 Frank O'Brien
 H. H. Dyke

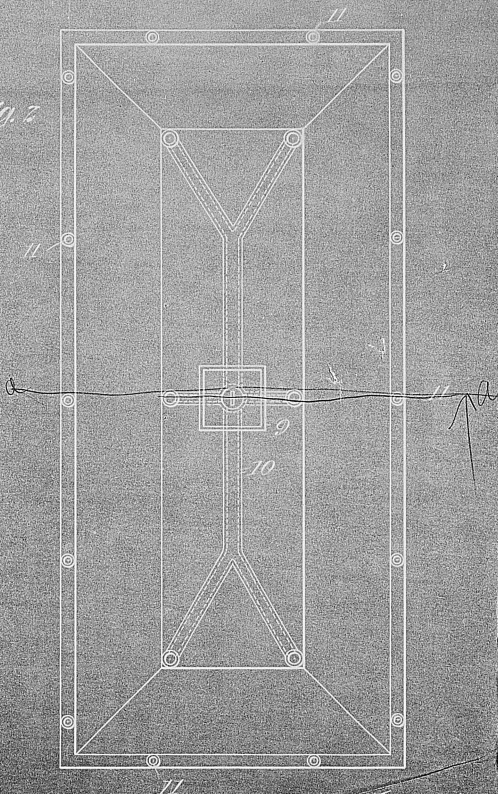
Fig. 3



Inventor

Thomas A. Edison
 by Bernard T. Ryan
 Att'y

Fig. 7



Witnesses:

Frank B. Rine

H. H. Dyke

Inventor:

Thomas A. Edwards

By Thomas A. Edwards

MA

**An Inventor Who Claims to Have Anticipated
Mr. Edison's Concrete House Idea.**

To the Editor of the SCIENTIFIC AMERICAN:

In No. 26, vol. xxvii, November 14, 1907, of SCIENTIFIC AMERICAN, I saw an article bearing the heading "Edison System of Concrete House." After reading over the article, I notice that this system consists in the use of concrete pumped into adequate molds, same being spoken of as a new invention.

I must state, however, that the said process is not novel, as under date of December 14, 1901, patent No. 2498 was granted to me by the Mexican government covering a new process of manufacturing and building houses or the like in one piece, by means of specially designed molds that let the air escape. The same patent was improved on the 23d of March, 1905, under No. 3552 Mx.

My system is still simpler than Mr. Edison's, as the mixer is suppressed.

I therefore claim as my own the prime idea of manufacturing concrete with a pump into adequate molds, this process being useful for the making of industrial products of every kind and description, as well as for building houses, etc.

This invention might cause a revolution in the art of building, as construction may be carried out by the use of small pieces of material sewrapped in a semi-fluid mass playing the part of cement, with the object of uniting said material. The addition of iron wire or armature is a factor of security to the rigidity of the products thus obtained.

I am still further improving my process so as to make it more practicable.

H. J. LACOMBE.

Mexico, November 25, 1907.

*Sci Am
Nov 25 1907*

Patent Application Files

These files consist of formal patent applications, along with correspondence between Edison's attorneys and the U.S. Patent Office. Some of the folders also contain notes and drawings by Edison; draft specifications in Edison's hand and other specifications with Edison notations; memoranda from Edison to his patent attorneys; and related correspondence authored by or sent to Edison, his associates, and his companies. Included are applications pertaining to phonographs and phonograph records, motion pictures, storage batteries, ore milling, cement, and concrete buildings. There are also a few applications relating to electric lighting, telephones, telegraphs, and other subjects such as "flying machines."

Another set of application files for Edison's U.S. patents can be found in the National Archives (Record Group 241, Records of the Patent Office). The National Archives set is nearly complete and available on microfilm. For that reason, the formal specifications and the correspondence between Edison's attorneys and the Patent Office have not been selected in the case files for the successful applications in the Edison National Historic Site's collection. The selected material from these files consists primarily of notes, drawings, and draft specifications by Edison, along with occasional correspondence to or from Edison, his associates, and his companies. The case files for Edison's abandoned or forfeited applications have been selected in their entirety except for duplicates, printed patents by Edison and other inventors, and other printed material. In addition, two applications by Edison's son, William Leslie Edison, have been selected.

The files are arranged in chronological order according to execution date—the date on which the formal application was signed and witnessed. On the list that follows, each selected application file is noted with its execution date; folio number; patent number (for issued patents) or serial number (for abandoned applications); and case file title. In a few cases where the execution date could not be determined, the application date, if known, or other conjectured date is supplied in brackets. Case files consisting entirely of unselected material do not appear on the list.

Exec. Date	Folio #	Ser. # or Pat. #	Abbreviated Case File Title
02/06/99	2230	Pat. 663,015	Electric Meters
02/06/99	2231	Pat. 648,934	Screening or Sizing Very Fine Material
02/24/99	2242	Pat. 643,764	Reheating Compressed Air
04/10/99	2236	Pat. 641,281	Expanding Pulleys
06/21/99	1	Ser. 722,229	Fine Screening Plates
07/05/99	3	Ser. 724,246	Combustible Engines
08/22/99	2298	Ser. 729,121	Bricking Pulverized Material
09/12/99	2302	Ser. 731,137	Phonographs
09/12/99	2303	Pat. 652,457	Phonographs
10/20/99	2310	Ser. 734,695	Conveying Belts
10/28/99	2316	Ser. 736,350	Drying/Screening Ores or Other Material in Bulk
[ca. 1899]	2277	[dropped]	Portland Cement
01/03/00	2333	Ser. 823	Magnetic Separation
01/03/00	2334	Ser. 824	Magnetic Separators
01/03/00	2335	Ser. 825	Drying/Screening Ores and Other Materials in Bulk
01/24/00	2342	Ser. 3,456	Fine Screening Plates
03/28/00	2369	Ser. 12,069	Stock Houses for Storing Material in Bulk
04/10/00	4	Pat. 759,356	Burning Portland Cement
04/10/00	5	Pat. 759,357	Burning Portland Cement
04/30/00	2379	Pat. 657,527	Metallic Duplicating Phonograph Records
04/30/00	2383	Pat. 667,662	Duplicating Phonograph Records
05/15/00	2386	Ser. 20,556	Coating Phonograph Records or Other Articles
09/28/00	2430	Pat. 703,051	Electric Meters
12/21/00	2452	Ser. 41,373	Reversible Galvanic Batteries
[ca. 1900]	2469	[not filed]	Storage Batteries
02/23/01	2486	Ser. 49,453	Reversible Galvanic Batteries
02/23/01	2493	Ser. 52,926	Electrodes for Galvanic Batteries
05/07/01	2516	Ser. 59,512	Depolarizers for Reversible Galvanic Batteries
06/17/01	2536	Pat. 692,507	Reversible Galvanic Batteries
[ca. 1901]	2608	[not filed]	Electrolytically Active Finely Divided Iron
04/05/02	13	Ser. 102,109	Nickel-plating Articles
[06/04/02]	14	Ser. 110,159	Making Sound Recordings
[06/04/02]	15	Ser. 110,160	Sound Records
09/30/02	18	Ser. 229,245	Reversible Galvanic Batteries
10/13/02	19	Pat. 727,118	Electrolytically Active Finely Divided Iron
11/13/02	22	Pat. 852,424	Storage Batteries

11/13/02	27	Pat. 802,631	Burning Portland Cement Clinker
11/13/02	28	Ser. 134,018	Portland Cement
12/18/02	29	Pat. 750,102	Electrical Automobiles
12/18/02	30	Ser. 138,428	Separating or Grading Apparatus
12/18/02	34	Pat. 1,014,818	Giant Rolls
02/16/03	42	Ser. 147,587	Storage Battery Charging Apparatus
04/27/03	46	Pat. 775,965	Dry Separators
05/25/03	48	Ser. 159,307	Dry Separators
07/20/03	54	Pat. 775,600	Rotary Cement Kilns
07/20/03	55	Ser. 166,520	Duplicating Tubular Sound Records
07/30/03	57	Ser. 167,929	Screening Plates
08/11/03	59	Ser. 169,334	Electromagnets for Magnetic Separation
08/25/03	60	Pat. 772,648	Vehicle Wheels
10/03/03	65	Pat. 850,912	Making Articles by Electroplating
11/02/03	69	Ser. 179,716	Duplicating Phonograph Records
11/11/03	70	Pat. 962,081	Recording Sound
11/11/03	71	Ser. 180,999	Recording Sound
11/16/03	72	Pat. 943,664	Sound Recording
11/20/03	74	Ser. 182,427	Primary Batteries
11/20/03	76	Ser. 182,428	Reversible Storage Battery
11/20/03	77	Pat. 873,220	Reversible Storage Battery
06/20/04	87	Pat. 861,241	Portland Cement
07/12/04	107	Pat. 847,746	Electrical Welding Apparatus
07/12/04	109	Ser. 217,881	Perforated Sheet Metal for Storage Batteries
08/23/04	113	Pat. 970,615	Sound Records
09/26/04	120	Ser. 226,776	Treating Graphite for Use in Alkaline Storage Batteries
01/16/05	126	Ser. 243,492	Sound Records
03/17/05	136	Ser. 251,001	Nickel-plated Graphites
03/29/05	144	Pat. 882,144	Storage Battery Electrode
04/11/05	149	Ser. 255,079	Sound Recording Apparatus
04/26/05	154	Ser. 257,943	Electrode Unit
05/20/05	169	Ser. 261,953	Phonographic Recorders
05/20/05	170	Ser. 261,949	Methods of Recording Sound
05/20/05	171	Pat. 963,362	Recording and Reproducing Sound
09/28/05	190	Pat. 1,152,613	Burning Portland Cement Clinker
10/11/05	193	Ser. 282,694	Cement Kilns
[10/19/05]	197	Ser. 283,529	Production of Thin Sheet Metal
11/28/05	209	Ser. 290,336	Making Metallic Films or Flakes
12/06/05	211	Ser. 290,712	Storage Battery Receptacles

12/06/05	212	Pat. 914,342	Storage Batteries
01/09/06	217	Pat. 858,862	Primary and Secondary Batteries
01/24/06	219	Pat. 1,065,597	Cement Burning Kilns
[01/27/06]	220	Ser. 298,282	Electric Automobile
02/01/06	223	Ser. 299,484	Feeding Apparatus for Cement Kilns
02/24/06	226	Pat. 964,096	Electroplating
03/17/06	227	Ser. 306,782	Electroplating
05/07/06	234	Pat. 1,059,661	Portland Cement
09/11/06	263	Pat. 962,823	Crushing Rolls, Cement
[09/13/06]	261	Ser. 334,411	Shaft Bearings
11/16/06	275	Ser. 345,043	Cement Burning Apparatus
11/16/06	276	Ser. 345,044	Blast Furnaces
12/28/06	280	Ser. 352,417	Concentrating Silver Ores
12/28/06	282	Pat. 1,024,839	Phonographic Recording Stylus
02/23/07	296	Pat. 975,339	Duplicating Talking Machine Records
05/08/07	314	Pat. 876,445	Electrolytes for Alkaline Storage Batteries
05/28/07	320	Pat. 1,163,329	Filaments for Incandescent Electric Lamp
06/11/07	321	Ser. 378,891	Telephones
06/11/07	322	Pat. 861,819	Discharging Apparatus for Belt Conveyors
06/11/07	324	Pat. 954,789	Sprocket-chain Drive
06/18/07	325	Pat. 909,877	Telegraphy
[11/14/07]	351	Ser. 403,043	Filaments for Incandescent Lamps
11/21/07	356	Pat. R13,434	Discharging Apparatus for Belt Conveyors
02/04/08	379	Pat. 909,167	Water Proofing Paint for Portland Cement Buildings
02/04/08	380	Pat. 896,811	Metallic Films for Use with the Storage Battery Electrodes
02/04/08	381	Pat. 1,182,897	Recording and Reproducing Motion and Sound
03/13/08	384	Pat. 996,625	Phonograph Reproducers
03/13/08	385	Ser. 421,887	Phonograph Records
03/13/08	386	Ser. 421,884	Phonograph Records Case A
03/13/08	387	Ser. 421,885	Phonograph Records Case B
03/13/08	388	Ser. 421,886	Phonograph Records Case C
03/13/08	389	Pat. 999,762	Storage Batteries
03/13/08	390	Pat. 975,340	Phonograph Reproducers
03/13/08	391	Pat. 944,481	Artificially Aging or Seasoning Portland Cement
03/13/08	393	Pat. 1,013,869	Bearings
03/13/08	394	Ser. 422,650	Reproducing Motion and Sound

05/27/08	413	Pat. 909,168	Water Proofing Fibers and Fabrics
06/08/08	417	Pat. 993,294	Device for Feeding Pulverulent Material
[06/09/08]	527	Pat. 1,081,728	Spark Plugs [W. L. Edison]
08/10/08	422	Pat. 1,219,272	Cement Buildings
08/10/08	423	Ser. 448,292	Color Picture Exhibiting Apparatus
08/20/08	436	Pat. 970,616	Flying Machines
10/10/08	428	Ser. 457,592	Phonograph Records Case E
10/10/08	430	Pat. 996,070	Rotary Kilns
11/20/08	439	Ser. 463,943	Water Proofing Material for Concrete
11/21/08	440	Pat. 1,148,832	Utilizing the Waste Heat in Kilns
12/09/08	442	Ser. 467,156	Treating Mold for Concrete
12/22/08	447	Pat. 1,123,261	Mold for Concrete Construction
01/27/09	454	Pat. 1,002,504	Crushing and Separating Fine Materials
02/18/09	456	Ser. 479,587	Phonographs
02/18/09	457	Ser. 479,586	Sound Records
03/02/09	458	Pat. 1,158,659	Phonograph Records Case A
11/04/09	547	Ser. 526,428	Air Pumps [W. L. Edison]
11/09/09	552	Ser. 528,323	Phonograph Reproducurs
12/04/09	560	Pat. 1,056,517	Reproducing Sound
12/04/09	561	Ser. 532,074	Sound Reproducing Apparatus
03/19/10	587	Pat. 1,110,428	Forming Phonograph Styluses
04/14/10	588	Pat. 1,019,441	Sound Recording Apparatus
05/02/10	596	Pat. 1,041,983	Phonograph Stylus
05/19/10	600	Ser. 563,041	Can or Receptacle
05/31/10	602	Pat. 1,178,062	Moving Picture Apparatus
05/31/10	603	Pat. 1,036,471	Storage Batteries
06/13/10	607	Pat. 1,115,463	Electrode Elements
07/02/10	611	Pat. 1,167,637	Utilizing Waste Heat in Kilns
08/29/10	630	Ser. 579,706	Vehicle Wheels
10/04/10	645	Pat. 1,099,241	Rectifiers
10/21/10	655	Ser. 588,982	Sound Records
12/05/10	674	Pat. 1,184,332	Talking Machines
12/07/10	649	Pat. 1,110,382	Sound Modifiers
12/08/10	675	Ser. 596,537	Disc Sound Records

No. 2230Serial No. 709,1461001

Applicant.

Thomas A. Edison

Address.

Title Improvements in Electric Meters.Filed Mar. 17/99Examiner's Room No. 86

Assignee

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Page

Patent No. 663,015Issued December 4, 1900

ACTIONS.

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|-------------------------------------|-----|
| 1. <u>Rejected Apr. 11/99</u> | 16. |
| 2. <u>Granted Mar. 26, 1900.</u> | 17. |
| 3. <u>Rejected Apr. 2, 1900</u> | 18. |
| 4. <u>Granted May 7, 1900.</u> | 19. |
| 5. <u>Withdrawn May 12, 1900.</u> | 20. |
| 6. <u>Final Grant Nov. 10, 1900</u> | 21. |
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RICHARD N. DYER,

31 Nassau Street,
NEW YORK CITY.

The object of the invention is the production of a very accurate, simple, and reliable meter for measuring Electric Currents -

The invention consists in ~~measuring the current by its electrolytic action upon salts of mercury~~ subjecting a soluble salt of mercury to electrolysis by a current fraction of the current to be measured, and causing conditions to be made whereby the metallic mercury set free by electrolysis, either drops into a capillary bore of a glass tube and ~~and the amount read off~~ by means of an index as with a thermometer or the mercury is dropped into a receptacle suspended in the liquid by a wire connected to a shaft with a retractible valve isolating spring and the weight of the mercury so added causing rotation of the shaft ~~which~~ the pointer upon the shaft passing over an index

whereby the weight of the mercury is
read off directly. Both the tube &
the index having been previously
calibrated.

3
A is the ~~cell~~ electrolytic cell
Containing Mercurous Nitrate saturated
to a point where it will not
crystallize out when subjected
to a temperature of 35 Fahr -

F is the mercury electrode
connected to the system by
~~the~~ a platinum wire sealed into
the glass tube D - & wholly
immersed in the Mercury

C is a very small platinum
wire also sealed into the
glass tube B. for ~~20~~ or 20
light meters or less the

4
Diameter of the platinum wire
should be about $\frac{1}{1000}$ of an
inch and about one inch
long for larger meters the
total surface of platinum
should increase ^{nearly} in proportion
to the lamps to be measured

The two platinum electrodes
are connected across a
shunt through a resistance
of about 1000 ohms a
portion of this resistance being
made of iron wire. The other
resistance wire should be of

of the same metal as the
shunt so that they will
mutually compensate for ~~the~~
changes of temperature
The Iron Resistance however
changes its resistance very
greatly with changes of
temperature and a sufficient
quantity of Iron wire is used
that the diminution of resistance
of the solution by increase of
temperature shall be ~~fully~~
balanced by a rise of
resistance in the Iron wire

c 6 3

The Resistance of the Electrolytic Cell which I employ for 20 lights is about 8 ohms.

The resistance of the iron wire will depend upon its purity & will be generally several times that of the cell.

The larger resistance coil is ~~for~~ inserted for the purpose of rendering any changes in the resistance of the cell other than that due to temperature a small percentage of the total resistance.

7
for instance with full load
the resistance of the cell
may go as low as 6 ohms
and with the smallest load
it may go to 15 ohms -
were there no resistance in
circuit this variation of
resistance ~~also~~ would make
the readings useless but by
the insertion of 1000 ohms -
The change from 6 to 15 ohms
or a difference of 9 ohms -
causes a variation in the current of
less than one percent -

8

The purer the Mercurous Nitrate & Mercury is the less will be the changes of resistance due to variations of load - The mercury itself should be triple distilled in Vacuum -

~~The action~~ The action of the meter is as follows. The shunt placed in the main line has we will say $\frac{1}{4}$ of 1 per cent of the total resistance when the maximum lamps are in circuit for which the meter is to measure - The meter will receive a current of $\frac{1}{1000}$ of

that due to ⁹ the Electromagnetic
force between the ² ends of
the shunt,

mercury is deposited upon the
platinum wire in very small
globules, these collect in great
numbers and when they reach
about $1/1000$ of an inch in diameter
they drop off into the receptacle
E and down the bend of the capillary
tube G. They do not pass away
the higher part of the bend
but collect & coalesce together,
but not perfectly. The Calcium

10
formed is very much broken up
by the liquid between sections
which have coalesced - at the
end of a month the column
extends up into E & a large
globule is formed -

When it is desired to read the
meter - the screw S is turned
& the Mercury N in the U shaped
tube is forced down. This causes
the liquid at M to enter
the capillary tube K & forces
the whole of the Mercury
at G up into E & to a

11

globule, any liquid that had
become entangled passes
up the sides of the large globule.
The junction between the Capillary
bore & E being ground at a
angle to insure the coalescing of
the mercury & elimination of the
liquid. ^{see X} If now the screw S
is turned the other way. The
liquid M is drawn out of the
Capillary tube & the ~~the~~
globule at E comes down into
the Capillary tube as an
unbroken column - The screw

is turned until the bottom of the Column is at Zero & the length is read off by the scale. The Column may remain until the next reading or it can be removed at once to the check bottle, by opening the pinch cock at B.B. = The latter is then closed & the meter is ready for another reading. The amount of liquid removed by running the mercury into the check bottle is very small. Monthly readings for ten years not lowering the liquid in the cell.

more than $\frac{1}{4}$ of an inch -

The Check bottle which may be placed in a locked receptacle can be used any time to check the single reading or the aggregate readings of the meter. Either by removing the mercury & weighing it, or by pouring it into a Calibrated Capillary tube - The Capillary tube is calibrated by weighing a globule of mercury of 500 ~~mg~~ milligram putting it in the tube ~~and~~ marking the Ends Zero & 500 & dividing the scale into 500 divisions. Can be taken to use a smaller quantity of mercury previously

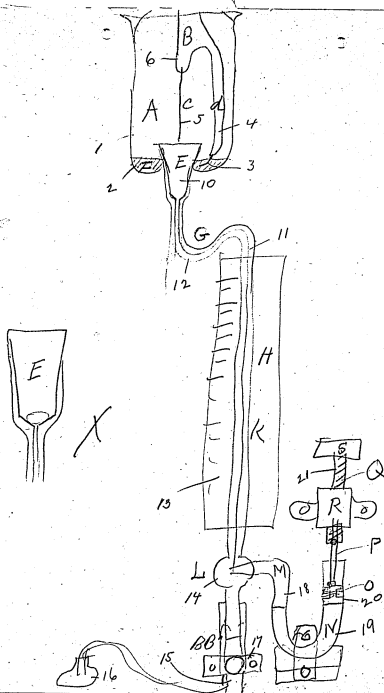
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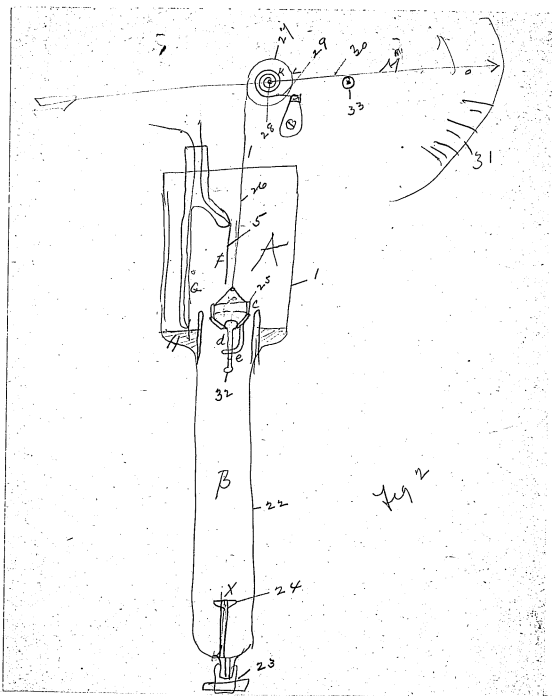
to asculani, ^{all} ~~the~~ parts of the
base is of the same diameter -

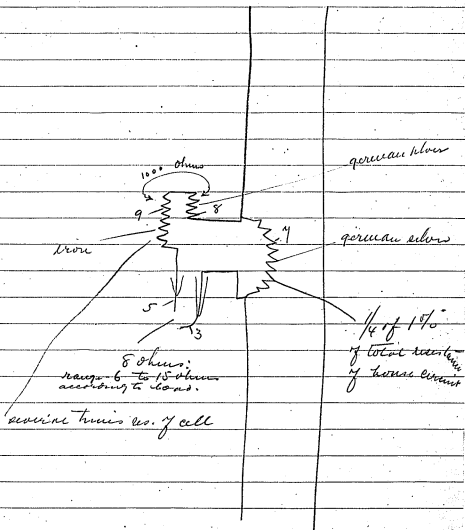
The Index design is operated ~~the~~ electrically in the same manner as the Capillary tube design with the exception that the mercury globules produced by electrolysis drop into a glass dish suspended from a platinum wire ^{two} diameters. This wire is connected to a disk on a shaft ~~which~~ which is provided with a retractile coiled hair spring - so adjusted as to balance the weight of the dish & bring pointer M (also connected to the shaft) to zero - as mercury accumulates in the dish ~~the~~ it descends & the Index moves.

around the scale - ~~The Spring~~
the scale is calibrated from
the spring so that each division
indicates the deposit of one
milligram of mercury in the
dish. at the end of the month
the maximum movement of the
index is noted & it ~~is~~ it is
then carried around to the extreme
limit from Zero which causes
the dish to descend to the bottom
of the tube B. the Valve d strikes
the projection X raising it up &
dumping the mercury which
can be drawn off at any time &
weighed by opening the Valve at the

600000 -







No. 22311002Serial No. 709,447

Applicant.

Thomas A. Edison

Address.

✓

Title

Process of (Apparatus) Securing & Storing Very Fine Materials

Filed

Feb. 17, 1899.

Examiner's Room No.

243

Assignee

Ass't Exec.

Recorded

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Page

Patent No.

648934

Issued

May 8, 1900.

ACTIONS.

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|----|--------------------------------------|----|--|
| 1 | <u>Rejected Apr. 21/99</u> | 16 | |
| 2 | <u>Amended Jan. 20, 1900.</u> | 17 | |
| 3 | <u>L. from O. Lib. 3/1900.</u> | 18 | |
| 4 | <u>Amended Feb. 21, 1900.</u> | 19 | |
| 5 | <u>L. from O. Feb. 7/1900</u> | 20 | |
| 6 | <u>L. to O. Feb. 26, 1900.</u> | 21 | |
| 7 | <u>Allowed April 3, 1900.</u> | 22 | |
| 8 | <u>Final fee paid Apr. 12, 1900.</u> | 23 | |
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RICHARD N. DYER,

31 Nassau Street,
NEW YORK CITY.

The object of this invention is to screen or size very fine material such as portland Cement, efficiently & economically -

The invention consists in carrying continuously a practically constant load of ~~large~~ very much larger material than the material to be screened out and adding to this constant load ~~from the~~ the products of crushing & subtracting the crushed material by means of screens preferably those described in my application filed ~~previously~~

The practice ~~the constant load~~ ~~of coarse material~~ ^{the quantity} of coarse material necessary to permit successful screening of the fine material added to it depends upon the fineness of the latter - with a slot 004 wire - 90 percent of the whole

load in continuous transit should be of coarse material preferably $\frac{1}{8}$ of an inch cube -

If the screen slot be 009 across then 70 per cent of the total should be large -

If 012, 68 percent is all that is necessary - If it is attempted to diminish the amount of coarse material the screens clog as well as the material.

This method applied to the crushing & screening of portland Cement is shown in fig 1

a b c are the 3 rolls constructed
substantially as shown in my
application

~~and~~ for fine grinding these are preferably placed horizontal instead of perpendicular & only one set of rolls used, the permits of the whole of the work being done between one pair of rolls under great pressure and 90 percent of material $1/8$ inch cube passing between the rolls is crushed at one pass to 150 mesh or finer. ~~It~~ ^{Coarser} It is a conveyor which brings the material from another part of the mill for final grinding. This material falls on the conveyor & which delivers

It to an Elevator M -
The ~~fine~~ ~~and~~ this Elevator
delivers it to The Conveyor
N which delivers it to
the bank of screens, The
screens abstract the fine
material & deliver to the
Conveyor K going to the storage
bins while the Coarse
material passes down
~~into the buffer~~ ~~into the~~
~~into the buffer~~ ~~into the~~
is again delivered upon the
Conveyor L by the chute
E. Connected to E is a
hopper & roller feed for
supply the desired quantity
of the Coarse material

5
to the rolls - and this feed is
so adjusted that the
roll crushes an amount equal
to the amount received
from Conveyor H. =

The Crushing feed roll is
not started until ~~the~~
~~the~~ the Conveyor + screen
system has been loaded
up with the proper amount
of coarse material + which
is making a continuous
circuit. When the proper
amount is in transit to
permit the screens to do
their work properly, the
feed roll for the crusher

6
is started.

By this system the screens
are kept free, have great
capacity and material impossible
to screen in any other manner
is easily effected by this system.

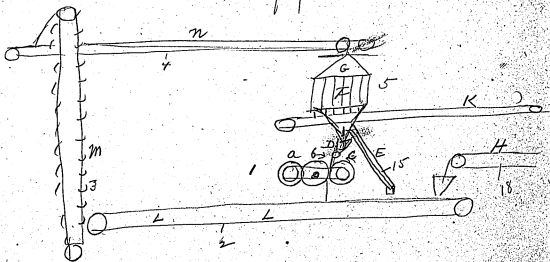
~~the~~

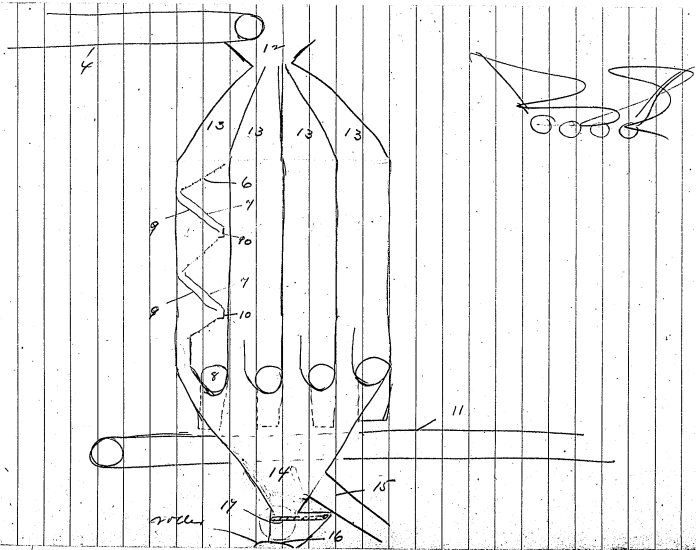
I guess some good claims
can be obtained on this

E

23rd Jan / 99

Fig. 1





No. 2242Case 1005Serial No. 1069762242

Applicant.

Address.

Thomas A. EdisonTitle Method of and Apparatus for Re-heating Compounds and for Industrial PurposesFiled Feb. 27, 1899.Examiner's Room No. 35Assignee Edison-Incandescent Lamp CompanyAss'g't Exec'd Apr. 24/99 Recorded May 4/99 Liber'd 59 Page 112Patent No. 643764 Issued Feb. 20, 1900.

ACTIONS.

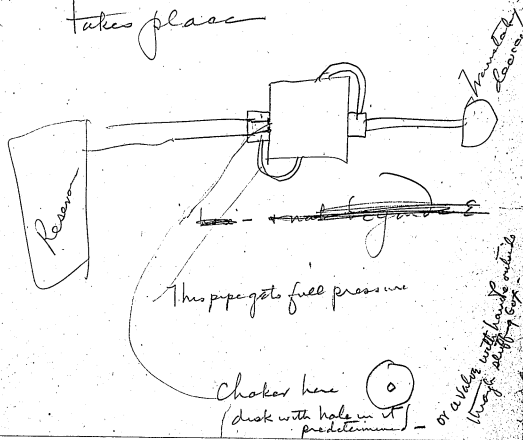
- | | | | |
|----|------------------------------------|----|-------------------------------|
| 1 | <u>Rejected Apr. 14/99.</u> | 16 | <u>Allowed Jan. 22, 1900.</u> |
| 2 | <u>Amended June 19/99.</u> | 17 | <u>Final Dec. 29/99.</u> |
| 3 | <u>Rejected July 1/99.</u> | 18 | |
| 4 | <u>Ex. to O. Aug. 15/99.</u> | 19 | |
| 5 | <u>Rejected Sept. 6/99.</u> | 20 | |
| 6 | <u>Apparatus Sept. 7/99.</u> | 21 | |
| 7 | <u>Ex. from O. Sept. 13/99.</u> | 22 | |
| 8 | <u>Amended</u> | 23 | |
| 9 | <u>Revised Oct. 11/99 at 1 PM.</u> | 24 | |
| 10 | <u>Ex. to O. Sept. 20/99.</u> | 25 | |
| 11 | <u>Ex. from O. Sept. 13/99.</u> | 26 | |
| 12 | <u>Decision Oct. 27/99.</u> | 27 | |
| 13 | <u>Amended Nov. 9/99.</u> | 28 | |
| 14 | <u>Rejected Dec. 4/99.</u> | 29 | |
| 15 | <u>Amended Dec. 6/99.</u> | 30 | |

RICHARD N. DYER,

31 Nassau Street,
NEW YORK CITY.

Dyer-

You say "cause a drop of
pressure beyond the source
of heat - It seems to
me the expression is not
exact. The fall of pressure
takes place



No. 2236100 LSerial No. 714340

Applicant.

Address. ☒Thomas A. Edison
Charles M. JohnsonTitle Infrt. in Expanding CollapsFiled April 24, 1899Examiner's Room No. 255

Assignee

Ass'g't Exec.

Recorded

Liber

Page

Patent No. 641,281Issued January 16, 1900.

ACTIONS.

- | | | |
|----|-------------------------------|----|
| 1 | <u>Reported May 10, 1899.</u> | 16 |
| 2 | <u>Specified June 29/99.</u> | 17 |
| 3 | <u>Allowed July 8/99.</u> | 18 |
| 4 | <u>Final Dec. 21/99.</u> | 19 |
| 5 | | 20 |
| 6 | | 21 |
| 7 | | 22 |
| 8 | | 23 |
| 9 | | 24 |
| 10 | | 25 |
| 11 | | 26 |
| 12 | | 27 |
| 13 | | 28 |
| 14 | | 29 |
| 15 | | 30 |

RICHARD N. DYER,

31 Nassau Street,

NEW YORK CITY.

Dyers



9th

Therman has improved the
old expanding pulley & wants
to take out patent in this C
he send papers & money order
but it look to me as if the
papers were not according to
Rule's - He also says they
must be filed before Feb'y
9th - I may need them this
morning - Please put them
through & state what you
had to do to them -
Send extra bill to his address
with explanatory letter. He
seems to think there is something in it
Edison

35 Mary Street is under foot of the

Folio No. 1Serial No. 722

Applicant.

Address.

Thomas A. EdisonLlewellyn Park, N. J.

Title

Wire Screening Plates

Filed

June 29, 1899Examiner's Room No. 243

Assignee

Ass'g't Exec.

Recorded

Liber

Page

Patent No.

Issued

ACTIONS.

1. Replied to Request 12, 1899 16
2. Amended Dec 19, 1900 17
3. Replied Feb 3, 1900 18
4. Amended Jan 24, 1901 19
5. Replied Feb 13, 1901 20
6. Appeal to Board of Examiners 21
7. Examiner's Answer dated Nov 1, 1901 22
8. Appeal to Board of Examiners dated 7, 1902 23
9. Answer to P. L. O. dated 1, 1902 24
10. Examiners in Chief Affirmed Appeal 25
10. Amended May 16, 1902 26
12. 27
13. 28
14. 29
15. 30

FRANK L. DYER,

Counsel,

ORANGE, NEW JERSEY

LAW OFFICES
OF
DYER, EDMONDS & DYER,
SPECIALTY,
Patents and Patent Causes,
31 NASSAU ST., NEW YORK.

RICHARD N. DYER,
REGISTRATION NO. 408,
SAMUEL O. EDMONDS,
REGISTRATION NO. 41,
FRANK L. DYER,
REGISTRATION NO. 402.

Petition.

To the Commissioner of Patents:

YOUR PETITIONER, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the County of Essex and State of New Jersey,

PRAYS THAT LETTERS PATENT MAY BE GRANTED TO HIM FOR THE IMPROVEMENT IN
FINE SCREENING PLATES AND PROCESS OF MAKING THE SAME

SET FORTH IN THE ANNEXED SPECIFICATION; AND HE HEREBY APPOINTS DYER, EDMONDS AND DYER (A FIRM COMPOSED OF RICHARD N. DYER, SAMUEL O. EDMONDS AND FRANK L. DYER), OF NO. 31 NASSAU STREET, NEW YORK CITY, HIS ATTORNEYS, WITH FULL POWER OF SUBSTITUTION AND REVOCATION, TO PROSECUTE THIS APPLICATION, TO MAKE ALTERATIONS AND AMENDMENTS THEREIN, TO RECEIVE THE PATENT, AND TO TRANSACT ALL BUSINESS IN THE PATENT OFFICE CONNECTED THEREWITH.

Thomas A. Edison

1
722 229

SPECIFICATION.

u TO ALL WHOM IT MAY CONCERN:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the County of Essex and State of New Jersey, have invented a certain new and useful IMPROVEMENT IN FINE SCREENING PLATES ~~AND PROCESS OF MAKING THE SAME~~ (Case No. 1009), of which the following is a description:

b My invention relates primarily to improvements in screens for effecting a screening operation of particles of extreme fineness.

a I have determined from experiment that the screening capacity of a screen plate depends almost entirely upon the thickness of the plate. I have employed sheet steel with punched slots, the latter being several times greater in length than in width, and with such screens I have determined that a plate, for instance, .010 of an inch in thickness having slots punched therein .006 of an inch in width will possess only a small fraction of the capacity of a plate having slots of the same width but being itself of a thickness of only .003 of an inch. I find that the thicker plate becomes rapidly clogged with particles of the material in process of screening, such as iron ore, thus reducing the screening capacity in a very short time to almost nothing, whereas if the plate is of less thickness than the width of its slots, it does not become clogged and can be operated for weeks without cleaning.

2003
The objection which I have experienced in the use of very thin plates has been their liability to wear, and it is to the accomplishment of a process by which this objection may be overcome that my present invention also relates. To

8
4
this end, the invention consists in the use of very thin plates having orifices, preferably slots, therein of greater width than the thickness of the plates, the width of the orifices being adapted for very fine screening.

It is the object of my invention to obtain the high screening capacity resulting from the use of thin plates, and at the same time to secure durability thereof.

4
In order that my invention may be better understood, attention is directed to the accompanying drawing forming a part of this specification, and in which figure 1 is a cross-sectional view of a screen plate embodying my present invention, and figure 2 a similar view illustrating the preferred process which I carry out for the partial hardening of such plates.

5
In both of the above views, corresponding parts are represented by the same letters of reference.

6
A represents a thin sheet-iron plate, suitably hardened, as I will explain, provided with orifices, preferably slots, a therein. The relation between the thickness of the plate A and the width of the orifices a is such that the former dimension is less than the latter. In the specific instance illustrated I show a plate which is indicated as being .006 of an inch in thickness, and having slots a therein which are indicated as being of a width each of .009 of an inch. *Jan 24, 1901*

7
In making my improved screens I prefer to proceed substantially as follows: A sheet-iron plate A is first secured, and the orifices a are formed therein preferably in a punch-press with gang-dies or punches. The plate, after having been punched with the orifices, is then dipped in a bath of molten cyanide of potassium for a few seconds. It is then withdrawn and immediately laid upon a flat iron plate such as B (figure 2), over which is located a corresponding

plate C, which is allowed to drop upon the punched plate A. The sudden chilling to which the plate A will be subjected by coming in contact with the larger masses of the plates B and C, serves to harden the plate A and to keep it perfectly flat until cooled. Any tendency of the plate A to warp or buckle during the cooling operation is thus overcome. After the punched plate A has sufficiently cooled, it is then immersed in a water bath to dissolve off the cyanide of potassium, and after this bath it is dried and oiled in any suitable and usual manner. As a specific instance of a convenient process for the proper hardening of plates .006 of an inch in thickness having punched slots therein each of a width of .009 of an inch, I will state that the plate may be allowed to remain in the molten bath of cyanide of potassium for thirty-five seconds, and during this period the iron will become carbonated to a depth of about .001 of an inch on each side. The surface hardening to which the screen plate will be thus subjected between the plates B and C, will be of a very high order, while at the same time the inner portions of the plate will be left sufficiently soft and pliable as to allow the plate to be bent or otherwise manipulated. If the plate were allowed to remain too long in the bath of cyanide of potassium, it would be rendered objectionably brittle, since the absorption of carbon would progress entirely through the same.

Instead of the special surface hardening process above described for the proper hardening of screen plates of this specific character, it will be understood that surface hardening of said screens may be carried out by the usual method of cementation by packing the plates in charcoal, leather etc. I consider the special process above described to be preferable however, since it is more expeditious and the depth of carbonation is under entire control.

2
b
Having now described my invention, what I claim as new and desire to secure by Letters Patent is as follows:

1. As a new article of manufacture, a very thin metal plate having screening orifices therein of greater width than the thickness of said plate, substantially as set forth.

2. As a new article of manufacture, a screening plate made of hardened metal of extreme thinness and with orifices formed therein of a greater width than the thickness of said plate, substantially as set forth.

3. As a new article of manufacture, a metal plate having a hardened screening surface but with a malleable central portion, said plate being of extreme thinness and having orifices formed therein of greater width than the thickness of said plate, substantially as set forth.

4. As a new article of manufacture, a screening plate having hardened surfaces and a malleable central portion, said plate having elongated screening orifices formed therein, substantially as set forth.

5. As a new article of manufacture, a very thin metal plate having screening slots therein of greater width than the thickness of said plate, substantially as set forth.

6. As a new article of manufacture, a screening plate made of hardened metal of extreme thinness and with slots formed therein of greater width than the thickness of said plate, substantially as set forth.

7. As a new article of manufacture, a metal plate having a hardened screening surface but with a malleable central portion, said plate being of extreme thinness and having slots formed therein of greater width than the thickness of said plate, substantially as set forth.

8. As a new article of manufacture, a screening plate having hardened surfaces and a malleable central por-

tion, said plate having elongated screening slots formed therein, substantially as set forth.

9. The method of making screening plates which consists in first forming a series of orifices in a sheet of malleable metal, and in subjecting the screening surface of said metal to a hardening process, substantially as set forth.

10. The method of making screening plates which consists in first forming a series of orifices in a plate of malleable metal, and in subjecting both surfaces of said plate to a hardening process, substantially as set forth.

11. The method of making screening plates which consists in first forming a series of orifices in a plate of malleable metal, in dipping the plate in a carbonating liquid, in then subjecting the screening surface to a chilling action, and in finally washing the plate to remove such liquid, substantially as set forth.

12. The method of forming screening plates which consists in first forming a series of orifices in a plate of malleable metal, in dipping the plate in molten cyanide of potassium, in then subjecting the screening surface to a chilling action, and in finally washing the plate to remove the cyanide of potassium, substantially as set forth.

13. The method of making screening plates which consists in forming a series of orifices in a plate of malleable metal, in dipping said plate in a bath of molten cyanide of potassium, in chilling the screening surface of said plate, in maintaining the plate under a flattened pressure until cool, and in finally washing the plate for the removal of the cyanide of potassium, substantially as set forth.

14. The method of making screening plates which consists in forming a series of orifices in a plate of mal-

leable metal, in dipping the plate in a bath of molten cyanide of potassium, in subjecting the plate to pressure between two plates of larger mass, whereby the surfaces of the screen plate will be chilled and the plate will be maintained under pressure during the cooling operation, and finally, after the said plate has been cooled, in dipping it in a bath of water for the removal of the cyanide of potassium, substantially as set forth.

THIS SPECIFICATION SIGNED AND WITNESSED THIS 21st DAY OF June 1899

Thomas A. Edison

Witnesses:

1.

J. A. Boehme

2.

J. F. Randolph

Oath.

State of New Jersey } ss.:
County of Essex

THOMAS A. EDISON, THE ABOVE-NAMED

PETITIONER, BEING DULY SWORN, DEPOSES AND SAYS THAT HE IS A citizen
OF THE United States, and a resident of Llewellyn Park, in the
County of Essex and State of New Jersey;
THAT HE VERILY BELIEVES HIMSELF TO BE THE ORIGINAL, FIRST AND SOLE INVENTOR
OF THE IMPROVEMENT IN FINE SCREENING PLATES AND PROCESS OF MAKING
THE SAME

DESCRIBED AND CLAIMED IN THE ANNEXED SPECIFICATION; THAT HE DOES NOT
KNOW AND DOES NOT BELIEVE THAT THE SAME WAS EVER KNOWN OR USED BEFORE
HIS INVENTION OR DISCOVERY THEREOF; OR PATENTED OR DESCRIBED IN ANY
PRINTED PUBLICATION IN THE UNITED STATES OF AMERICA OR ANY FOREIGN COUNTRY
BEFORE HIS INVENTION OR DISCOVERY THEREOF, OR MORE THAN TWO YEARS PRIOR
TO THIS APPLICATION; OR IN PUBLIC USE OR ON SALE IN THE UNITED STATES FOR
MORE THAN TWO YEARS PRIOR TO THIS APPLICATION, AND THAT NO APPLICATION
FOR FOREIGN PATENT HAS BEEN FILED BY HIM OR HIS LEGAL REPRESENTATIVES OR
ASSIGNS IN ANY FOREIGN COUNTRY.

SWORN TO AND SUBSCRIBED BEFORE ME THIS 21st DAY OF June 1899

(SEAL)

Thomas A. Edison
J. F. Randolph
NOTARY PUBLIC
New Jersey

Fig. 1

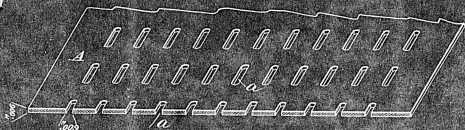
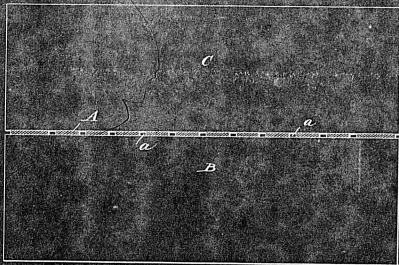


Fig. 2



Witnesses:

Joos. F. Coleman
John A. Taylor

Inventor

Thomas A. Edison
by L. J. Edwards

Att'ys

2-020.

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

{ Series of 1880.

No. 722229

DEPARTMENT OF THE INTERIOR,

United States Patent Office

Washington, D. C.,

June 29, 1889



SIR:

I have to acknowledge the receipt of the petition, specification, oath, and
drawing of your alleged improvement in
Thin Screening Plates Process of
Making same
with Fifteen Dollars as the first fee payable thereon.

The papers are duly filed, and your application for a patent will be taken up
for examination in its order

You will be duly advised of the examination.

Very respectfully,

Case will be taken up for
examination in about one month.

C. H. Druell
Commissioner of Patents.

J. A. Edison
J. Dwyer, Edmunds & Dyer
331 Nassau St. New York

NOTE.—In order to constitute an application for a patent, the inventor is by law required to furnish his petition, specification, oath, and drawings (where the nature of the case admits of drawings) and to pay the required fee.
No application is considered as complete, nor can any official action be had thereon, until all its parts, as here specified, are furnished in due form by the inventor or applicant.

Any communication respecting this application should give the serial number, date of filing, and title of invention.

See if payment is made by check or draft, the credit granted is subject to the collection of the same.

Room No. 245

All communications should be addressed to
The Commissioner of Patents,
Washington, D. C.

Any communication respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

WASHINGTON, D. C.,

Aug. 10, 1899.

U.S. PATENT OFFICE,

AUG 10 1899

MAILED

Thomas A. Edison,

Care Dyer, Edmonds & Dyer,

31 Nassau St.,

New York City.

Please find below a communication from the EXAMINER in charge of your application.

#722,229, for Fine Screening Plates, and Process of Making the Same,
filed June 29, 1899.

C. H. Dwell
Commissioner of Patents.

Rule 41 of the Rules of Practice in this Office, provides
that "A machine, a process, and a product, are separate and independent
inventions, and claims for each must be presented in a separate
application". Claims 1 to 8, inclusive, are for an article which
ordinarily forms part of a machine, and claims 9 to 13, for a method
or process. Under the rule division is required, and in view of the
decision in case of Rappleye, 85 O.G., 2096, it is required that di-
vision be made before action on the merits.

With the view of aiding applicant in making division reference
is made to the following: - Hsaila, 207,178, Aug. 20, 1878; Oastler,
255,345, Mar. 21, 1882; Berthelet, 479,617, July 26, 1892; and Cross,
583,032, May 23, 1897 - all in Mills; Ore & Coal, Sifters & Screens.
See, also, 340,542, J. Bates, April 27, 1886--Thrashing, Shaking
Screens.

THOMAS A. EDISON

FINE SCREENING PLATES
AND PROCESS OF MAKING
THE SAME

ROOM NO. 243.

FILED JUNE 29, 1899

SERIAL NO. 722,229

HONORABLE COMMISSIONER OF PATENTS,

S I R :-

In the above entitled application, the following amendment is submitted:

Change the title of the invention to ----- IMPROVE-
MENT IN FINE SCREENING PLATES -----

In the petition, erase the words "AND PROCESS OF
MAKING THE SAME".

Page 1, lines 5 and 6, erase the words "AND PROCESS
OF MAKING THE SAME".

Page 3, after the last line insert ----- I do not
claim herein the process involved in the manufacture of fine
screening plates by the surface hardening thereof, either
broadly considered or specifically, by dipping said plates
in a bath of molten cyanide of potassium as explained, since
that process, both specifically and generically considered,
is embodied in a separate application.-----

Cancel claims 9 to 14 inclusive.

Action on the merits is respectfully requested.

The several references to which the Examiner has
called applicant's attention have been carefully considered.
So far as can be determined, they all show ordinary screen-
ing plates of the usual thickness. Applicant's invention
relates specifically to screening plates which are micro-
scopically thin, whereby the effective screening of extreme-
ly fine material can be carried out. Applicant is entirely
willing to acknowledge the references and any other ordinary

screening plates. In the sense of the specification, the expressions "very thin" and "of extreme thinness" mark a very wide distinction from anything that is disclosed in the references. The second claim is limited to a screening plate "made of hardened metal", the third claim to a plate having "a hardened screening surface but with a malleable central portion", and the fourth claim is limited to a plate having "hardened surfaces and a malleable central portion". The sixth, seventh and eighth claims are correspondingly limited to plates such as above recited having screening slots therein. There does not seem to be any question that these claims are fully distinguished from the references.

Very respectfully,

Wm. Edwards & Boyd
Attorneys for Edison.

New York, January 19, 1900.

Room No. 243.

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

2-071

All communications regarding this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

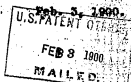
WASHINGTON, D. C.

Thomas A. Edison,

Gore Dyer, Edmunds & Dyer,

31 Nassau St.,

New York City.



Please find below a communication from the EXAMINER in charge of your application.

From 229, for Fine Screening Plates and Process of Making Same, filed
June 29, 1899.

C. H. Duell
Commissioner of Patents.

This case has been further considered in view of amendment
filed on the 20th ult.

The terms "very thin" (claims 1 and 5) and "extreme thinness",
(claims 2, 3, 6 and 7) are relative terms without special or definite
significance. A plate or screen may be thin, or very thin, or extreme-
ly thin, when measured by one standard, and thick, or very thick,
when measured by another. Metal screens having been made from plates
of different thickness, as shown by the references before cited, the
thickness of plate which applicant has selected for his purpose is
merely a matter of degree and devoid of patentable novelty.

The references show screens made of sheet metal with elongated
plate therein whose width is greater than the thickness of the plate,
and these therefore meet the construction defined in the claims.

In a work entitled "Workshop Receipts for Manufacturers, Me-
chanics, and Scientific Amateurs", 3d Series, by G. E. W. Lock, a
copy of which may be found in the library of this office, is described
(page 274) a process of case-hardening thin articles by heating the
same and then placing them "between 2 cold iron plates". On page
281 of the same work the use of Potash in case-hardening
is set forth, this substance being employed on account of its sur-
rounding properties. However, the method employed by applicant for

Revised. In every amendment the exact word or words to be stricken out or inserted in the application must be specified
and the precise point indicated where the emendation or insertion is to be made. All such amendments must be on sheets of paper
separate from the papers previously filed, and written on both sides of the paper.

T. A. Edison,

No. 722,239,

2-

case-hardening his screen plate is foreign to the case under consideration, and the citations above made are made merely with the view of showing the state of the art and not because they are considered to have any special bearing upon this case. Thin plates having before been hardened, and it being a matter of common knowledge that a hardened plate or screen will better resist wear than a soft one, there is no invention in case-hardening a punched plate, whether of extra or ordinary thinness, in the manner in which the unpunched or imperforate plates have been hardened.

The claims are rejected for lack of patentable novelty in view of the state of the art as disclosed by the references cited.

THOMAS A. EDISON

TYPE CONCERNING PLATES AND PROCESS OF
MAKING SAME ROOM NO. 243.

FILED JUNE 29, 1899

SERIAL NO. 722,229

HON. COMMISSIONER OF PATENTS,

S I R :

Please amend as follows:-

Page 2, after line 25, insert -----In practice
I find that my improved screening plates can be made to vary
in thickness between approximately .035 of an inch having
slots .2 of an inch in width for the thickest plates, down
to .006 of an inch in thickness with slots .009 of an inch
in width for the thinnest plates, and in the following
claims where reference is made to very thin plates or to
plates of extreme thinness, I have reference to plates not
greater in thickness than .035 of an inch.-----

It is hoped that in view of the above amendment, by
which a definite limitation is imposed on the claims, the
case may be allowed. All the references show relatively
thick plates, that is to say, plates having a thickness of
at least four times the thickness of the maximum figure
adopted by applicant. With very thin plates, such as ap-
plicant uses, case hardening is necessary. With relatively
thick plates, such as the references employ, such an expedi-
ent is entirely unnecessary.

Very respectfully,

THOMAS A. EDISON,

By 

His Attorneys.

New York, January 24, 1901.

Room No. 243

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

2-246

All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

WASHINGTON, D. C.

Feb. 13, 1901



A.B.S.

Thomas A. Edisen,

Care Dyer, Edmonds & Dyer,

No. 31 Nassau Street,

New York City, N. Y.

Please find below a communication from the EXAMINER in charge of your application.

#722,229, filed June 29, 1899, for Fine Screening Plates and Process
of Making Same.

C. H. Duell
Commissioner of Patents.

This case has been considered in connection with amendment
filed Jan. 25th, 1901.

The references of record and the reasons before given are ad-
hered to and the case is finally rejected.

The case is now in condition for appeal to the Board of
Examiners-in-Chief.

Examiner,

Division XXV.

REMARK.—In every amendment the exact word or words to be stricken out or inserted in the application must be specified
and the precise point indicated where the emendure or insertion is to be made. All such amendments must be on sheets of paper
separate from the papers previously filed, and written on but one side of the paper.

in every application for a patent filed subsequent to December 31, 1897, responsive action must be made by the
inventor within one year after the first office action or the case will become abandoned.

THOMAS A. EDISON :
FINE SCREENING PLATES :
FILED JUNE 29, 1899 : ROOM NO. 243.
SERIAL NO. 722,229 :

HONORABLE COMMISSIONER OF PATENTS,

S I R :---

In the above entitled application, we hereby appeal to the Examiners in Chief from the decision of the Primary Examiner, who, on February 18th 1901, rejected for a second time and finally all the claims of the application, and in support hereof we beg to assign the following reasons of appeal:

1. The Examiner erred in deciding that the references of record anticipate the terms of the claims.
 2. The Examiner erred in holding that the references of record anticipate the substance of said claims.
 3. The Examiner erred in not allowing said claims.
- An oral hearing is requested.

Respectfully,

THOMAS A. EDISON,

By Bliss & Hony

His Attorneys.

New York, January 27, 1902.

2-176.

Room No.
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

DEPARTMENT OF THE INTERIOR.

United States Patent Office

Washington, D. C., July 10, 1902



SIR:

I have to acknowledge the receipt of the APPEAL by the

Exr - in - Chief

in your application for Improvement in

Fine Screening Plates

with \$10.00

the fee payable thereon.

Of the result due advice will be given.

Very respectfully,

R. L. Allan
Commissioner of Patents.

Thomas G. Edison

For Papers, Edmunds & Dyer
31 Nassau St.
N. Y. City.

FIG. 72. In every amendment the exact word or words to be stricken out or inserted in the application must be specified and the words shall be set out where the change or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper.

Room No - 243-
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

2-246.

communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

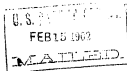
WASHINGTON, D. C.,

Feb. 15, 1902.



Thomas A. Edison,

Care Dyer, Edmonds & Dyer,
Edison Laboratory, Orange, N.J.



Please find below a communication from the EXAMINER in charge of your application.

#722,229, filed June 29, 1899, for Screening Plates and Process for
Making Same.

F. J. Allen,

Commissioner of Patents.

Answer to appeal.

In the United States Patent Office.

Application No. 722,229,	:	
Thomas A. Edison,	:	Before the
Fine Screening Plates and	:	Hon. Board of Examiners-in-Chief,
Process of Making Same,	:	On Appeal.
Filed June 29, 1899.	:	

Dyer, Edmonds & Dyer for applicant.

Examiner's Statement.

The claims on which this appeal is based are the following:

- "1. As a new article of manufacture, a very thin metal plate having screening orifices therein of greater width than the thickness of said plate, substantially as set forth.
- "2. As a new article of manufacture, a screening plate made of hardened metal of extreme thinness and with orifices formed therein of a greater width than the thickness of said plate, substantially as set forth.
- "3. As a new article of manufacture, a metal plate having a hardened screening surface but with a malleable central portion, said plate being of extreme thinness and having orifices formed therein of greater width than the thickness of said plate, substantially as set forth.
- "4. As a new article of manufacture, a screening plate having hardened surfaces and a malleable central portion, said plate having elongated screening orifices formed therein, substantially as set forth.
- "5. As a new article of manufacture, a very thin metal plate having screening slots therein of greater width than the thickness of said plate, substantially as set forth.
- "6. As a new article of manufacture, a screening plate made of hardened metal of extreme thinness and with slots formed therein of greater width than the thickness of said plate, substantially as set forth.
- "7. As a new article of manufacture, a metal plate having a hardened screening surface but with a malleable central portion, said plate being of extreme thinness and having

slots formed therein of greater width than the thickness of said plate, substantially as set forth.

- "5. As a new article of manufacture, a screening plate having hardened surfaces and a malleable central portion, said plate having elongated screening slots formed therein, substantially as set forth."

The references on which the above-named claims were finally rejected are as follows:

✓ 207,178,	Heald,	Aug. 20, 1878;
✓ 255,325,	Oastler,	March 21, 1882;
✓ 479,617,	Berthelet,	July 26, 1892;
✓ 583,032,	Cross,	May 25, 1897,---
	Mills, Ore and Coal, Sifters and Screens;	
✓ 340,542,	Bates,	April 27, 1886,---
	Thrashing, Shaking Screens; and	

"Workshop Receipts for Manufacturers, Mechanics, and Scientific Amateurs," (3d Series, pp. 274, 281,) by C.G.W. Lock---Patent Office Library.

"For answer to the appeal the Examiner respectfully submits the following extract from office letter of February 3, 1900:

"The terms 'very thin' (claims 1 and 5) and 'extreme thinness', (claims 2, 3, 6 and 7) are relative terms without special or definite significance. A plate or screen may be thin, or very thin, or extremely thin, when measured by one standard, and thick, or very thick, when measured by another. Metal screens having been made from plates of different thickness, as shown by the references before cited, the thickness of plate which applicant has selected for his purpose is merely a matter of degree and devoid of patentable novelty. The references show screens made of sheet metal with elongated slots therein whose width is greater than the thickness of the plate, and these therefore meet the construction defined in the claims.

In a work entitled "Workshop Receipts for Manufacturers, Mechanics, and Scientific Amateurs", 3d Series, by C.G.W. Lock, a copy of which may be found in the library of this office, is described (page 274) a process of case-hardening thin articles by heating the same and then placing them "between 2 cold iron plates". On page 281 of the same work the use of Prussiate of Potash in case-hardening is set forth, this substance being employed on account of its carbonizing properties. However, the method employed by applicant for case-hardening his screen plate is foreign to the case under consideration, and the citations above made are made merely with the view of

showing the state of the art, and not because they are considered to have any special bearing upon this case. Thin plates having before been hardened, and it being a matter of common knowledge that a hardened plate or screen will better resist wear than a soft one, there is no invention in case-hardening a punched plate, whether of extreme or ordinary thickness, in the manner in which unpunched or imperforate plates have been hardened."

Examiner,

Division XXV.

Room 243, U.S. Patent Office,

Feb. 15, 1902.

2-201.

Room No. 242.
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

DEPARTMENT OF THE INTERIOR,



United States Patent Office,

Washington, D. C., Feb. 17, 1902

Thos. A. Edison

To Sycr. Edmund Sycr
Sycr

N.Y. City

SIR:

The appeal from the decision of the Examiner in the case of T. A.
Edison for a patent for an improvement in
Fine Screening Plates
filed June 29/99, 1900, Serial No. 722,229, will be heard by the
Examiners-in-Chief, Wednesday Mar. 12/02 at 1 P.M.

If appellant, or his attorney, shall not appear at that time the hearing will
be regarded as waived, and the case will be decided upon the record.

Very respectfully,

Can be heard in
the 24/02 if you
prefer - L.

F. J. Allen,
Commissioner of Patents.

THOMAS A. EDISON :
FINE SCREENING PLATES : BEFORE THE EXAMINERS IN CHIEF
FILED JUNE 29, 1899 : ON APPEAL.
SERIAL NO. 722,229 :

BRIEF FOR APPELLANT.

The present invention relates to improvements in screening plates of the type covered by Edison patent number 676,057 of May 28, 1901. In that patent the use of short stationary screens with slotted screening openings is disclosed, the idea being to give the material a maximum opportunity to pass through the screening openings. In conducting experiments for the screening of very fine material with screens having slots ranging from .2 of an inch to .009 of an inch, the ordinary stock sheets were slotted and material passed over the same. It was then observed that the screening effect secured became proportionately reduced as the width of the slots was decreased. It was finally discovered that with the very narrow slots, the thickness of the plates was relatively so great that many of the particles became wedged into the slots so as to clog the same and reduce the screening effect. It was found that by making plates always thinner than the width of the slots, as good results could be secured with very narrow slots as with wider slots. The invention of this application, therefore, consists, in the first place, of a screening plate, the openings in which are of greater width than the thickness of the plates.

The making of these plates of extreme thinness encountered another and equally serious difficulty, namely the rapid wearing of the plates in use. What is done, there-

fore, is to case-harden the plates so as to give them preferably a hard screening surface and a malleable central portion, so as "to allow the plate to be bent or otherwise manipulated" (page 3 lines 21-22). The preferable process described in the specification for case-hardening the plates consists in first punching the plate, then dipping it in a bath of molten cyanide of potassium for a few seconds, and finally chilling it between two cold plates of sufficient mass to quickly radiate the heat and also to prevent any warping or buckling of the screening plate during the cooling operation (page 3 lines 6-7). The screening plate is then washed, dried and oiled in the usual way.

We know, of course, that plates for the screening of coarse material, such as coal for example, have been made of less thickness than the width of the screening openings, but with such apparatus the desirability of observing a definite relation between the width of the openings and the thickness of the plates had not apparently been observed. In order that the claims might be limited, therefore, to the making of extremely thin screening plates, we added to the specification by the amendment of January 24th 1901 the following statement:

"In practice, I find that my improved screening plates can be made to vary in thickness between approximately .035 of an inch having slots .2 of an inch in width for the thickest plates, down to .006 of an inch in thickness with slots .009 of an inch in width for the thinnest plates, and in the following claims where reference is made to very thin plates or to plates of extreme thickness, I have reference to plates not greater in thickness than .035 of an inch."

The claims are as follows:

1. As a new article of manufacture, a very thin metal plate having screening orifices therein of greater width than the thickness of said plate, substantially as set forth.
2. As a new article of manufacture, a screening plate made of hardened metal of extreme thinness and

with orifices formed therein of a greater width than the thickness of said plate, substantially as set forth.

3. As a new article of manufacture, a metal plate having a hardened screening surface but with a malleable central portion, said plate being of extreme thinness and having orifices formed therein of greater width than the thickness of said plate, substantially as set forth.

4. As a new article of manufacture, a screening plate having hardened surfaces and a malleable central portion, said plate having elongated screening orifices formed therein, substantially as set forth.

5. As a new article of manufacture, a very thin metal plate having screening slots therein of greater width than the thickness of said plate, substantially as set forth.

6. As a new article of manufacture, a screening plate made of hardened metal of extreme thinness and with slots formed therein of greater width than the thickness of said plate, substantially as set forth.

7. As a new article of manufacture, a metal plate having a hardened screening surface but with a malleable central portion, said plate being of extreme thinness and having slots formed therein of greater width than the thickness of said plate, substantially as set forth.

8. As a new article of manufacture, a screening plate having hardened surfaces and a malleable central portion, said plate having elongated screening slots formed therein, substantially as set forth."

These claims are self-explanatory and need not be specifically considered. It is sufficient to say that the last four claims correspond exactly with the first four, except that they are limited to the employment of slots as the preferred form of screening openings.

The Examiner rejects the 1st and 5th claims on certain U. S. patents, and the remaining claims on those patents taken in connection with a publication which describes applicant's process as applied to the case-hardening of "thin articles", the Examiner's argument being that in view of the latter reference, no invention would be required to case-harden the plates of the several United States patents which he cites.

In his answer to the appeal, the Examiner practically rests on his former letter of February 3rd 1900, in which he says:

"The terms 'very thin' (claims 1 and 5) and 'extreme thinness' (claims 2, 3, 6 and 7) are relative terms without special or definite significance. A plate or screen may be thin or very thin or extremely thin when measured by one standard, and thick or very thick when measured by another. Metal screens having been made from plates of different thickness, as shown by the references before cited, the thickness of plate which applicant has selected for his purpose is merely a matter of degree and devoid of patentable novelty."

We direct the attention of the Examiners in Chief to the fact that subsequent to this letter, and in an effort to meet the Examiner's views, we submitted our amendment of January 24th 1901, in which the meaning of the terms "very thin" and "extreme thinness" was definitely explained, namely as relating "to plates not greater in thickness than .035 of an inch". So far as the references are concerned, they obviously cover plates which are of greater thickness. Heald describes a screen for sifting tacks, Castler a stone screen, Bates a flaxseed screen, Berthelet a cement screen, and Cross a coal screen. These screens are all used for heavy work and are all much thicker than .035 of an inch. Furthermore, the screens of Heald and Berthelet are of greater thickness than the width of the screening slots, so that these two patents can be disposed of on that consideration alone.

So far as the rejection of claims 2, 3, 4, 6, 7 and 8 is concerned, we submit that it is without justification. The appellant has produced a new article of manufacture consisting of a screening plate which, while having the proper proportions to give a maximum screening effect, is at the same time sufficiently durable for practical use. That invention was made as a result of the discovery that a screen

for the screening of very fine materials should be of even less thickness than the width of the slots, and the further recognition of the fact that screens of this extreme fineness could be made durable and sufficiently tough by a case-hardening operation. We submit, therefore, that the decision of the Examiner should be reversed.

2044
No. 24,089.

U. S. Patent Office, March 15, 1902.

Before the Examiners-in-Chief, on Appeal.

Application of Thomas A. Edison for a patent for an improvement in Fine Screening Plates and Process of Making Same, filed June 29, 1899. Serial No. 722,229.

Messrs. Dyer, Edmunds & Dyer for appellant.

The claims appealed are:

- "1. As a new article of manufacture, a very thin metal plate having screening orifices therein of greater width than the thickness of said plate, substantially as set forth.
- "2. As a new article of manufacture, a screening plate made of hardened metal of extreme thinness and with orifices formed therein of a greater width than the thickness of said plate, substantially as set forth.
- "3. As a new article of manufacture, a metal plate having a hardened screening surface but with a malleable central portion, said plate being of extreme thinness and having orifices formed therein of greater width than the thickness of said plate, substantially as set forth.
- "4. As a new article of manufacture, a screening plate having hardened surfaces and a malleable central portion, said plate having elongated screening orifices formed therein, substantially as set forth.
- "5. As a new article of manufacture, a very thin metal plate having screening slots therein of greater width than the thickness of said plate, substantially as set forth.
- "6. As a new article of manufacture, a screening plate made of hardened metal of extreme thinness and with slots formed therein of greater width than the thickness of said plate, substantially as set forth.
- "7. As a new article of manufacture, a metal plate having a hardened screening surface but with a malleable central portion, said plate being of extreme thinness and having slots formed therein of greater width than the thickness of said plate, substantially as set forth.
- "8. As a new article of manufacture, a screening plate having hardened surfaces and malleable central portion, said plate having elongated screening slots formed therein, substantially as set forth."

The references are patents to

Heald, August 20, 1878, No. 207,179;
 Onstler, March 21, 1882, No. 255,325;
 Bates, April 27, 1886, No. 340,542;
 Berthelot, July 26, 1892, No. 479,617;
 Cross, May 25, 1897, No. 583,032;
 "Workshop Receipts for Manufacturers, &c.", Lock.

The references show screens of thin sheet metal having slots wider than the thickness of the metal.

They are ample as anticipations of those of these appealed claims which rely on that particular of construction.

The operation is the same whether or not the plate be so thin as by the passage before the claims these plates must be. The relative dimensions of the plates and orifices being the same, the operation will be the same regardless of the size of the screen. In other words, a thick screen having been so made, there can be no new invention in making that screen of the same proportions but of diminished thickness.

This applicant is dealing with the separation of grades of very fine material. He finds that the slots of the large screen must be narrowed or all of the material will pass through them. He makes them narrower, thus destroying their old size relatively to the thickness of the old screen, and then finds that the long parallel walls of the narrowed slots cause the fine material to pack in the slots. Thereupon he makes these walls shorter by using thin plates, whereupon, having got back to the proportions of the original screen and obtained it in diminutive size, it works on fine material just as it did when of large size on coarser material.

We find nothing in these claims beyond making an old screen of proper size for the character of the material to be screened.

The other feature of the claims is the case-hardening of the surface of the thin plates to make them strong and durable.

Case-hardening of metal plates is an old process, as is commonly known, and appears by the references cited for these purposes, and its result is the same on thick and on thin plates.

We find no new invention in these claims.

The decision of the Examiner is affirmed.

A. M. Loring

J. G. Stevens

} Examiners-in-Chief.

3rd. member absent.

THOMAS A. EDISON
FINE SCREENING PLATES
FILED JUNE 29, 1899
SERIAL NO. 722,229

HONORABLE COMMISSIONER OF PATENTS,

S I R :—

In the above entitled application we hereby appeal to the Commissioner in person from the decision of the Board of Examiners in Chief, who on March 15th 1902 affirmed the decision of the Primary Examiner on all the claims of this application, and in support hereof we assign the following reasons of appeal:

1. The Examiners in Chief erred in deciding that the references of record anticipate the terms of the claims.
2. The Examiners in Chief erred in holding that the references of record anticipate the substance of said claims.
3. The Examiners in Chief erred in not allowing said claims.

An oral hearing is requested.

Respectfully,

Attorneys for Appellant.

New York, March 7, 1903.

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

M. A. W.

LETTER NO.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C.

March 15th, 1903



In the matter of the
Application of

Thomas A. Edison,
Fine Screening Plates
& Process of Making Same,
Filed June 25, 1889,
Ser. No. 722,222.

On Appeal to the Commissioner.

Sir:

You are hereby informed that a hearing on the above
appeal, from the decision of the Examiners-in-Chief, has been
fixed for Thursday, March 26, 1903 at 10 A. M.

By direction of the Commissioner.

Very respectfully,

Chas. M. Dyer
Chief Clerk.

Thomas A. Edison,

c/o Dyer, Edmonds & Dyer,

231 Nassau Street,

New York, N. Y.

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

Letter No.

H. A. W.
DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C.

March 18th, 1903.

In the matter of the
Application of

Thomas A. Edison, On Appeal to the Commissioner,
Fine Screening Plates, &c.,
Filed June 29, 1899,
Ser. No. 722,229.

Sir:

You are hereby informed that the hearing on the above
appeal has been continued to Tuesday, April 28, 1903 at 10 A. M.

By direction of the Commissioner.

Very respectfully,

C. M. Dyer
Chief Clerk.

Thomas A. Edison,

c/o Dyer, Edmonds & Dyer,

#31 Nassau Street,

New York, N. Y.

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

M. A. W.

LETTER NO.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C.

April 27th, 1903.

In the matter of the
Application of

Thomas A. Edison

Fine Screening Plates etc.,

Filed June 28, 1898,

Isser. No. 722,228.

On Appeal to the Commissioner.

Sir:

You are hereby informed that the hearing on the above
appeal has been continued to Tuesday, May 5, 1903 at 10 A. M.

By direction of the Commissioner.

Very respectfully,

C. M. Ireland
Chief Clerk.

THOMAS A. EDISON,

c/o Dyer, Rhonda & Dyer,

Edison Laboratory,

Orange, N. J.

UNITED STATES PATENT OFFICE.

THOMAS A. EDISON :
FINE SCREENING PLATES :
FILED JUNE 29, 1899 :
SERIAL NO. 722,229 :

Honorable Commissioner of Patents

Sir:

The undersigned presents an amendment in the above entitled application, which it is respectfully requested may be accepted and entered. The purpose of this amendment is not to change or broaden the invention in any way, but to more clearly and positively identify the invention. While it is necessary, to secure a high screening efficiency, that the thickness of the plates should be less than the width of the screening openings, it is equally important that the plates should be as thin as possible. This feature has always been a part of my invention and I have made oath to that fact by a separate supplemental oath. Unless the amendment is accepted, my invention will not be properly and adequately protected.

Very respectfully,

Thomas A. Edison

IN THE UNITED STATES PATENT OFFICE.

THOMAS A. EDISON :
:
FINE SCREENING PLATES : BEFORE THE COMMISSIONER
:
FILED JUNE 29, 1899 : IN PERSON.
:
SERIAL NO. 722,229 :

BRIEF FOR APPELLANT.

The present application involves an invention of Mr. Edison relating to screens for screening very fine materials. The openings are preferably in the form of slots as covered by Edison patent No. 675,057 dated May 28, 1901.

Prior to Mr. Edison's invention, the screening of very fine materials was an operation which was always attended by serious difficulties since the efficiency of the screens was extremely low. While with very coarse screens the efficiency might be fairly good, yet with very fine screens, measured in tenths, hundredths and thousandths of an inch, the efficiency would only be a small fraction of that secured with coarse screens. These low efficiencies in very fine screens have been accepted by manufacturers apparently as inevitable.

Under the old practice followed by manufacturers prior to Mr. Edison's invention and even at the present time, the openings in the screens were and are produced by means of punches, the thickness of the metal used being relatively great, and being determined largely by the capacity of the punches. In the case of extremely fine screens, the metal selected, was, in thickness, frequently double the width of the slots, and as the mesh was increased, the thickness of metal was also increased, but not in the same ratio, so that with coarser screens the thickness of the plates was equal to the width of the slots, while with very coarse screens, the slots were several times wider than the thickness of the plates. In every instance however, the plates were relatively

thick and were always selected with reference to durability and not to efficiency. These facts appear from the affidavit of Mr. Chapman submitted herewith,

As a result of experiment, Mr. Edison discovered that in order to secure an efficient screening operation, a definite ratio between the thickness of the plates and the size of the screening openings must be observed. In other words, he found that the plates should not only be thinner than such width, but that the plates in fact should be made of the minimum practical thickness, the only limitations being the commercial possibility of securing the plates of sufficient thickness and that their strength should be sufficient to properly sustain the load. This increase of efficiency is not to be measured by mere fractions, but is in fact, frequently as high as eight times that secured with fine screens antedating the invention. These facts are also explained from Mr. Chapman's affidavit, who points out the remarkable peculiarity of Mr. Edison's screens, namely, that although very much thinner than any screens heretofore proposed, they are just as durable as the much thicker screens, so far as concerns the total bulk of material which passes through them in their life-time.

In the original application, the specific character of the invention was not as clearly set out as it should have been. The invention consists of more than merely making the plates thinner than the width of the screening openings, but consists in making the plates of a minimum thickness so long as they give proper support to the load, and preferably many times thinner than the width of the screening openings. A proposed amendment is submitted herewith, bringing out this fact and suggesting three substitute claims, the amendment being supported by a proper supplemental oath. It is hoped that this amendment may be accepted, and that the new claims will be considered on this appeal.

It is not necessary to consider the references in detail since it is evident that they do not show instances of the use of metal of a minimum practicable thickness, and hence do not anticipate, in substance at least, Mr. Edison's invention.

It is obvious that in the patents to Heald and to Berthelet, the thickness of the plates is greater than the width of the screening openings, so that these patents may be dismissed at the outset as having no bearing on the appealed claims. In fact it would appear to be Heald's idea, to make the slots with long parallel walls as shown in Figure 3 of his patent. So far as the patent to Bates is concerned, it is not possible to say with that degree of certainty necessary in the case of a reference, that the screening openings are wider than the thickness of the plates. Nothing is said in the patent as to the importance of this ratio, and in the drawings the screens O and R are certainly shown as being thicker than the size of the openings. Apparently the screen M is thinner than the width of the slots M', but these proportions may be due to the caprice of the draftsman. Whether this is so or not, it is clear that the thickness of metal used by Bates is certainly many times thicker than that which might be used. Furthermore, attention is called to the fact that with the only slotted screen of the Bates patent, the slots extend transversely of the travel of the material, and hence are no more efficient than round holes.

So far as concerns patents to Oastler and to Cross, both of these references relate to ordinary coarse screens, which in practice with one inch slots, are made of metal about five-sixteenths of an inch, the width of the slots being somewhat less than four times the thickness of the plates. With coarse screens of this size, Mr. Edison has used metal only one-thirty-second of an inch in thickness, the width of the slots being 32 times the thickness of the plates, and the efficiency of the screens has been increas-

ed more than six fold. It is evident that all the references illustrate the common practice referred to in the affidavits of Mr. Edison and Mr. Chapman, the manufacturer merely selecting a suitable metal capable of being readily punched, apparently solely with reference to durability and without any regard whatever for efficiency. Yet as above pointed out, the use of thicker metal does not result in an increase of durability, so that the Edison screens are not only cheaper, more efficient, and more rapid in operation, but they are also just as durable when the total bulk of material which passes over them is considered.

The Examiners-in-Chief, in their decision state that the references "show screens of thin sheet metal having slots wider than the thickness of the metal." While these proportions, speaking generally, may be observed in the patents to Cross and to Castler, it is evident that when the Edison invention is considered in its final analysis, it is not anticipated. No one so far as is known, prior to Mr. Edison, ever made the observation that the plates should be of the minimum thickness so as to thereby secure a screen of equal durability and of enormously greater capacity.

The Examiners-in-Chief further state:

"The relative dimensions of the plates and orifices being the same, the operation will be the same, regardless of the size of the screen. In other words, a thick screen having been so made, there can be no new invention in making that screen of the same proportions but of diminished thickness.

This applicant is dealing with the separation of grades of very fine material. He finds that the slots of the large screens must be narrowed or all of the material will pass through them. He makes them narrower, thus destroying their old size relatively to the thickness of the old screen, and then finds that the long parallel walls of the narrowed slots cause the fine material to pack in the slots. Thereupon he makes those walls shorter by using thin plates, whereupon having got back to the proportions of the original screen and obtained it in diminutive size, it works on fine material just as it did when of large size on coarser material."

This argument of the Examiners-in-Chief is a mere assumption which has no real basis in fact. While with the Edison invention before them, it might seem to be a simple

and obvious thing to make the plates of extremely thin material, yet the fact remains that that was never done, and manufacturers of fine screens, without a single exception, always employed relatively thick material in the construction of such screens. This fact very clearly appears not only from the affidavits of Mr. Edison and Mr. Chapman, but also from the catalogue of the Allis-Chalmers Co., one of the largest manufacturers in the world, of screens of all sorts. The true explanation of the case is that no one prior to Mr. Edison ever discovered the cause of the low efficiency of very fine screens. If it was generally known by manufacturers that the reason why fine screens were so inefficient was because the plates were too thick, it might be admitted that no invention would be required to make the plates thinner. In that case however, there would probably be no necessity for the present appeal, because the Examiner would then have had no difficulty in finding complete anticipations, as it is inconceivable that manufacturers of fine screens knowing how their efficiency might be increased, would content themselves with the manufacture of fine screens which were of very low efficiency. When the microscopic character of fine screens is considered, it is submitted that the "inward eye of the imagination" was required to produce the invention here claimed rather than the exercises of ordinary mechanical skill or judgment as suggested by the Examiners-in-Chief.

It is thought therefore that the claims should be allowed.

Respectfully submitted,

THOMAS A. EDISON

By

Frank L. Allen
his Attorney.

IN THE UNITED STATES PATENT OFFICE.

THOMAS A. EDISON	:	
FINE SCREENING PLATES	:	BEFORE THE COMMISSIONER
FILED JUNE 29, 1899	:	IN PERSON.
SERIAL NO. 722,229	:	

Affidavit of Cloyd M. Chapman.

State of New Jersey S.S.
County of Essex

Cloyd M. Chapman, having first been duly sworn on oath doth depose and say as follows:-

I am by profession a mechanical and mining engineer and was educated at Cornell University. For more than four years past, I have been employed by Mr. Edison as a mining engineer and during that time have been almost continuously employed on experiments relating to mining processes and involving the screening of fine materials. These experiments were conducted by me at the Edison Laboratory, Orange, New Jersey, and also in New Mexico. In these experiments, I determined conclusively, that in the screening of very fine material, the use of thin plates permits of a much more efficient screening operation, than when the screening openings are formed in relatively thick plates. For instance, with screens having .01 inch openings, formed in plates say .02 inch in thickness, the efficiency is no more than 20 % of that secured when the screen plates are about .006 inch in thickness. The best results were secured where the plates were as thin as possible, although of course, there is a limit to the possible thinness of the plates to make them strong enough to carry the load of material.

Steel or iron plates less than .006 inch in thickness are not now available, and in this material screening slots have been formed ^{by the use of} ranging from .009 to .060 inch. In the first case (.006 to .009) the plates have been ^{about} two-thirds

as thick as the width of the slots, and in the latter case (.006 to .150) the plates have been only one-twenty-fifth as thick as the width of the slots. The highest efficiencies are secured when the plates are many times thinner than the slots are wide; in fact, the plates should be of the minimum thickness. In the case of the .009 inch screen, greater efficiency would be secured with metal only .001 inch or less in thickness, but such metal cannot be obtained. I have however, used brass plates only .003 inch thick with increased efficiency.

I have found as a result of my experiments, that with very fine screens ranging from .009 inch upwards, in width of the screening openings, the efficiency is just as high as with very much coarser screens, provided the proper ratio of thickness of plate to width of screening opening is maintained. In the practical manufacture of fine screening plates, it is not yet known by manufacturers other than Mr. Edison that the ratio between the thickness of the plates and the width of the slot has anything to do with the efficiency of the screen. It is the aim in fact of all manufacturers of fine screening plates to use relatively thick metal, apparently in order to secure the greatest durability. The thickness of metal employed by other manufacturers depends largely on the capacity of the punches, it being obvious that a very fine, relatively sharp punch must be used on thinner metal than coarse punches, and also that slot punches can be used on coarser metal than round hole punches. An example of the present practice followed by the manufacturers of screen plates, is shown in catalogue of Allis-Chalmers Co., which I attach hereto and mark Exhibit A. The Allis-Chalmers Co., is one of the largest and best known manufacturers of screen plates in the world. On page 13 of this catalogue is given "A Table for Punching Needle-Slot-Screens", which are the kind of screens particularly refer-

red to by Mr. Edison in his patent application. These needle-slot-screens vary in width of slot from .0135 inch up to .058 inch and the thickness of the metal varies from .022 of an inch to .065 inch. In every case, the metal is considerably thicker than the width of the slots. If the Allis-Chalmers Co., had appreciated the important results which are derived from the use of excessively thin plates they would punch their .058 inch screens in metal .022 of an inch or less, in thickness, since by doing so they would produce a screen having a much greater capacity and efficiency than the screen which they sell. The Allis-Chalmers Co., however, merely follow the accepted practice and since their .058 inch punches are capable of perforating thicker metal than their .0135 inch punches, they use the thicker metal in preference to the thinner metal. The fact that all manufacturers before Mr. Edison selected material largely with reference to the capacity of their punches instead of with regard to the efficiency of the screens, is illustrated by the table on page 34 of this catalogue, in reference to round hole screens. A round or square punch is obviously less capable of perforating a sheet of a given thickness than a slot punch. Consequently the maximum thickness of metal which can be used in a round hole screen is less than with a needle-slot-screen. This fact is shown for instance by the .05906 inch screen referred to on page 34 of the catalogue. The width of the screening openings in this screen is only about .001 of an inch more than that of the .058 inch screen referred to on page 13. Yet in the case of the needle-slot-screen the thickness of metal used is .065 inch, while in the case of the round hole screens the thickness of metal used is .049 inch.

The use of relatively thick metal by the Allis-Chalmers Co., and all other manufacturers, does not secure relative durability, since the efficiency is so low that the load of material has to be passed over the screens for a correspond-

ingly greater period of time, and consequently the wear is very rapid. Thus with an Edison screen having six times the efficiency of an Allis-Chalmers screen, only one sixth the material requires to be passed over the former to secure the same bulk of screened material as the latter, and, speaking generally, the wear will be only one-sixth as great, and consequently the plate may be made only one-sixth as thick. A relative reduction of the metal to this extent would result in a greater increase in efficiency than 600 per cent, so that the Edison screen is fully as durable, if not more so, than the old screens.

The Allis-Chalmers Co., catalogue referred to was published in February 1892, and was received at the Edison Laboratory in April of that year. So far as I know, no one prior to the date of Mr. Edison's application, other than Mr. Edison ever made a very fine screen in which the plate was thinner, and preferably very much thinner than the width of the screening openings, or observed that the ratio between the thickness of plate and width of slots, has any bearing on the question of efficiency.

Cloyd M. Chapman

Sworn to and subscribed before me this *1st* day of
May 1903.

Thomas L. Spear

NOTARY PUBLIC, STATE OF NEW JERSEY
COMMISSION EXPIRES FEBRUARY, 1908.

IN THE UNITED STATES PATENT OFFICE

THOMAS A. EDISON :
FINE SCREENING PLATES : BEFORE THE COMMISSIONER
FILED JUNE 29, 1899 : IN PERSON.
SERIAL NO. 722,229 :

Affidavit of Thomas A. Edison.

State of New Jersey S.S.
County of Essex

Thomas A. Edison, on oath doth depose and say as follows:

I am the applicant above named. I have read the affidavit of Oloyn M. Chapman, verified on the ^{29th} day of ~~April~~ ^{May} 1903, and find that Mr. Chapman has correctly stated the facts in reference to my invention and also in reference to the practice followed by other manufacturers of fine screens at the present time, and for years prior to my invention.

As a practical instance of the practice followed by other users and makers of fine screens, I recall the following incident:

About the time that the above application was filed, I used a large number of fine screens involving the invention here claimed, at my ore milling plant at Edison, N. J. Very superior results were secured with those screens; in fact the efficiency was very much higher than with any screens then known. The New Jersey Zinc Co., had a plant located at Franklin, N. J., a few miles from Edison, and were using ordinary fine screens punched in relatively thick plates but with very poor results. Officers of the New Jersey Zinc Co. frequently complained to me of the poor efficiency of their screens and were always surprised to hear of the high efficiencies which I was securing. I finally loaned the New Jersey Zinc Co., a set of my screens, and told them to have the

screens reproduced. Either on the instructions of the Zinc Co., or on the manufacturers judgement, the reproduced screens made for the company were constructed of considerably thicker metal than the set which I loaned the company, so that when installed they were as inefficient as those previously used. Neither the Zinc Co., nor the manufacturer of their screens could explain the loss in efficiency, and finally attributed the loss to differences in material, and in conditions of operation. It was not until I examined the screens thus installed by the Zinc Co., that I saw what the trouble was.

Thomas Edison

Sworn to and subscribed before me this 4th day of
May
April 1903.

Orlando L. Ryan

NOTARY PUBLIC, STATE OF NEW JERSEY
Commission Expires December 1904.

UNITED STATES PATENT OFFICE

THOMAS A. EDISON :
FINE SCREENING PLATES :
FILED JUNE 29, 1899 :
SERIAL NO. 722,229 :

HONORABLE COMMISSIONER OF PATENTS

SIR:

I desire to amend the above entitled application by erasing from line 11, page 1, to line 26, page 2, including the matter introduced by amendment of Jan 25th, 1901 and by substituting the following:

----- Fine screening plates constructed prior to my invention and ranging in mesh or width of screening openings below .2 inch, have been of extremely low efficiency. With such screens only from 10 to 20 % of particles sufficiently fine to pass through the screening openings, would in fact pass through such openings. These low efficiencies were regarded as necessarily characterizing very fine screens. With the prior screens, the screening openings in the form of round or square holes or slots, have been punched in metal plates, the thickness of which has been largely determined by the capacity of the punches. Obviously, the cutting capacity of a punch is determined by the ratio between the cross sectional area and the perimeter of the opening, and consequently a round hole punch of the same diameter is more efficient than a square hole punch of the same diameter, while a slot punch is still more efficient. For this reason, it is a fact that with fine screens constructed prior to my invention and having reference to any particular mesh, slot screens have been of thicker metal than round hole screens, which in turn have been thicker than square hole screens. In the prior practice, manufacturers have not necessarily used the very thickest metal which

can be perforated by the different punches, but apparently, having in mind the single question of durability, the prior screens have been formed in sheets as thick as practicable. It may be stated generally, as illustrating the practice followed before my invention, that with screens of a minimum mesh, plates of a maximum relative thickness have been employed, sometimes almost double the width of the screening openings, while as the mesh increases the proportionate thickness of the plates has not been retained, so that in the case of considerably coarser screens, the width of the screening openings becomes equal to the thickness of the plates, while in the case of very coarse screens (say an inch or more in mesh), the width of the screening openings is several times greater than the thickness of the plates. In this practice however, manufacturers have been guided solely by the question of durability and not of efficiency, and so far as I know, no one prior to my invention ever suggested the cause of the low efficiency of fine screens or observed that the thickness of metal used in proportion to the width of the screening openings determines, in any way, the efficiency of the screen.

I have determined from experiment that the screening capacity of a screen plate depends almost entirely upon the thickness of the plate and have found that in order to secure the maximum efficiency the plates should be of the minimum thickness, preferably very much thinner than the width of the screening openings. At the present time sheet iron or steel cannot be secured in plates of an available size, thinner than .006 of an inch, and in this material I have formed screening openings ranging from .009 of an inch up to .15. In the latter case the thickness of the plates has been only one-twenty-fifth of the width of the screening openings, while in the case of the .009 inch screen, the thickness of the plate is two-thirds the width of the screen-

will be greatly increased without a proportionate sacrifice of durability, and the invention preferably consists of such a plate having a case hardened screening surface, and a malleable central portion, all as I shall herewith describe and claim.

It is the object of my invention to obtain a very high screening capacity resulting from the use of plates of a minimum practical thickness without a proportionate sacrifice of durability.

In order that my invention may be better understood, attention is directed to the accompanying drawing forming a part of this specification, and in which Figure 1, is a cross sectional view of a screen plate embodying my present invention and Figure 2, a similar view illustrating the preferred process which I carry out for the partial hardening of such plates.

In both of the above drawings corresponding parts are represented by the same letters of reference.

A, represents a thin sheet iron plate suitably hardened as I will explain, provided with orifices, preferably slots a, therein. The relation between the thickness of the plate A and the width of the orifices a, is such that the former dimension is less, and preferably very much less, than the latter. In the specific instance illustrated, I show a plate which is indicated as being .006 of an inch in thickness and having slots a, therein, which are indicated as being of a width each of .009 of an inch. This screen may be considered as representing the minimum width or fineness of mesh and as representing the maximum ratio between the width of slot and the thickness of the plate. I have pointed out, that at the present time, metal less than .006 of an inch in thickness is not available, but if such metal could be secured it should be employed. From this minimum width of slot, the screens may be increased in mesh without an increase in thickness of metal. With some materials, a screen having a

15. inch mesh can be formed in the same plates. The best results are secured in practice when the width of the screening openings is not only greater than the thickness of the plates, but when such width is many times (30 or more) greater than such thickness.

The reason why my improved screens are more efficient than the screens used prior to my invention, is that with the latter, the thicker plates become clogged with particles of the material in process of screening, thus reducing the screening capacity in a very short time, to almost nothing, whereas, if the plate is much less in thickness than the width of the slots, it does not become clogged and can be operated for weeks without cleaning.-----

Cancel the claims and substitute the following.

(1) As a new article of manufacture, a screen having openings formed in a plate of minimum thickness, less than the width of said openings, and sufficient only to offer proper support to the material passed over the same, substantially as and for the purpose set forth.

(2) As a new article of manufacture, a screen having slots formed in a plate of minimum thickness, less than the width of said openings, and sufficient only to offer proper support to the material passed over the same, substantially as, and for the purposes set forth.

(3) As a new article of manufacture, a screen having openings formed in a plate of minimum thickness, less in width than said openings, sufficient only to offer proper support to the material passed over the same, and having a hardened screening surface and a malleable central portion, substantially as and for the purposes set forth.

A supplemental oath is filed herewith, in order to

meet any possible objection to the amendments above made.

Very respectfully,

THOMAS A. EDISON

by *Hearn L. Allen*
his Attorney.

Orange, N. J., May 4, 1903.

State of New Jersey
County of Essex

S.S.

THOMAS ALVA EDISON, whose application for letters patent for an improvement in FINE SCREENING PLATES, Serial No. 722,229 was filed in the United States Patent Office on the 29th day of June 1899, having been duly sworn, deposes and says that the subject-matter of the foregoing amendment was part of his invention, was invented before he filed his original application, above identified, for such invention, was not known or used before his invention, was not patented or described in a printed publication in any country more than two years before his application, was not patented in a foreign country on an application filed more than seven months before his application, was not in public use or on sale in this country for more than two years before the date of his application, and has not been abandoned.

Thomas A. Edison

Sworn to and subscribed before me this 4th day of
May, 1903.

Thomas L. Allen
Notary Public, State of New Jersey
Commission Expires February, 1908

May 8, 1903.

N.L.H.

United States Patent Office.

Ex parte Thomas A. Edison.

Fine Screening Plates.

Appeal from Examiners-in-Chief.

Application filed June 29, 1899, No. 732,229.

Mr. Frank L. Dyer for applicant.

This is an appeal from a decision of the examiners-in-chief affirming the rejection by the examiner of the following claims:

- "1. As a new article of manufacture, a very thin metal plate having screening orifices therein of greater width than the thickness of said plate, substantially as set forth.
- "2. As a new article of manufacture, a screening plate made of hardened metal of extreme thinness and with orifices formed therein of a greater width than the thickness of said plate, substantially as set forth.
- "3. As a new article of manufacture, a metal plate having a hardened screening surface but with a malleable central portion, said plate being of extreme thinness and having orifices formed therein of greater width than the thickness of said plate, substantially as set forth.
- "4. As a new article of manufacture, a screening plate having hardened surfaces and a malleable central portion, said plate having elongated screening orifices formed therein, substantially as set forth.
- "5. As a new article of manufacture, a very thin metal plate having screening slots therein of greater width than the thickness of said plate, substantially as set forth.
- "6. As a new article of manufacture, a screening plate made of hardened metal of extreme thinness and with slots formed therein of greater width than the thickness of said plate, substantially as set forth.
- "7. As a new article of manufacture, a metal plate having a hardened screening surface but with a malleable central portion, said plate being of extreme thinness and having slots formed therein of greater width than the thickness of said

plate, substantially as set forth.

"8. As a new article of manufacture, a screening plate having hardened surfaces and a malleable central portion, said plate having elongated screening slots formed therein, substantially as set forth."

The references are as follows:

Heald,	August 20, 1878,	No. 207,178;
Oastler,	March 21, 1882,	No. 255,328;
Rates,	April 27, 1886,	No. 340,542;
Berthelet,	July 26, 1892,	No. 479,617;
Cross,	May 26, 1897,	No. 553,032;

"Workshop Receipts for Manufactures, &c" Lock.

These patents show screens made of sheet metal and they are provided with openings which are wider than the thickness of the plate.

In some of these patents the openings are formed in the shape of slots and in these the width of the slots is greater than the thickness of the metal plate. The applicant contends that in his invention the width of the openings in the plate has a ratio to the thickness of the plate, but that the plate must be as thin as possible, its thickness being limited only by its capacity to support the material being screened. These alleged differences are ones of degree merely, and do not amount to invention.

The case hardening of the metal plate is a common expedient as shown by the references cited by the examiner and its result is well known. This feature does not confer patentability on claims which include it.

The decision of the examiners-in-chief is affirmed.

A. J. Allen
Commissioner.

May 26, 1903.

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

LETTER NO.

M. A. W.
DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C.

May 27th, 1903.

In the matter of the
Application of
Thomas A. Edison
Pino Screening Plates &
Process of Making Same,
Filed June 29, 1899,
Ser. No. 732,229.

On Appeal to the Commissioner.

Sir:

You are hereby informed that the decision of the
Examiners-in-Chief has been affirmed by the Commissioner.
Please find enclosed herewith a copy of the decision.

By direction of the Commissioner.

Very respectfully,

D. M. Mortimer
Acting Chief Clerk.

Thomas A. Edison,
c/o Frank L. Dyer,
Edison Laboratory,
Orange, N. J.

Case No. Paper No.

Folio No. 3

Serial No. 1224

Applicant.

Address.

Title

Filed

Examiner's Room No.

Assignee

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Patent No.

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FRANK L. DYER.

Counsel,

ORANGE, NEW JERSEY

LAW OFFICES
OF
DYER, EDMONDS & DYER,
SPECIALTY,
Patents and Patent Causes,
31 NASSAU ST., NEW YORK.

RICHARD N. DYER,
REGISTRATION NO. 448.
SAMUEL O. EDMONDS,
REGISTRATION NO. 449.
FRANK L. DYER,
REGISTRATION NO. 446.

*This is only a
Copy and return*

Petition.

To the Commissioner of Patents:

YOUR PETITIONER, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the County of Essex and State of New Jersey,

PRAYS THAT LETTERS PATENT MAY BE GRANTED TO HIM FOR THE IMPROVEMENT IN COMBUSTION ENGINES

SET FORTH IN THE ANNEXED SPECIFICATION; AND HE HEREBY APPOINTS DYER, EDMONDS AND DYER (A FIRM COMPOSED OF RICHARD N. DYER, SAMUEL O. EDMONDS AND FRANK L. DYER), OF NO. 31 NASSAU STREET, NEW YORK CITY, HIS ATTORNEYS, WITH FULL POWER OF SUBSTITUTION AND REVOCATION, TO PROSECUTE THIS APPLICATION, TO MAKE ALTERATIONS AND AMENDMENTS THEREIN, TO RECEIVE THE PATENT, AND TO TRANSACT ALL BUSINESS IN THE PATENT OFFICE CONNECTED THEREWITH.

THOMAS A. EDISON.

Thomas A. Edison

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the County of Essex and State of New Jersey, have invented a certain new and useful IMPROVEMENT IN COMBUSTION ENGINES (Case No. 1010), of which the following is a description:

My invention relates to improvements in combustion engines, and my object is to produce a relatively simple device wherein high efficiency may be secured.

In an application for patent filed by me February 27, 1899, Serial No. 706,976, I describe an improved device whereby heat may be imparted to compressed air by directing a portion of the air through an enclosed source of burning combustible, and preferably by directing the remaining portion of the compressed air into proximity with the source of burning combustible so as to be heated therefrom by radiation and convection, the portions of the air so directly and indirectly heated being reunited and being used for any industrial purpose. I have discovered that the heat so imparted to compressed air results in a very great increase of the efficiency thereof, whereby I am enabled to utilize the air so heated in an engine cylinder for the performance of useful work, and to operate by said cylinder a compressor for the compression of the air. By thus compressing air under favorable conditions and utilizing it in an efficient engine cylinder, I am enabled, by interposing a suitable heating device between the compressor and said engine cylinder, to secure a very considerable surplus energy at the shaft, and

thereby obtain a combustion engine wherein a relatively large percentage of the energy derived from the burning combustible may be converted into useful work.

My invention therefore consists in the combination with an air compressor, of an air motor or engine connected thereto and driving the same, and a heating device interposed between the compressor and motor, and by which air compressed by the compressor may derive heat directly, and preferably also indirectly, from a source of burning combustible, the added efficiency thus imparted to the compressed air serving to operate the motor with a sufficient excess of power as to be utilizable in the accomplishment of work.

In the preferred embodiment of my invention, I employ a single-acting compressor and a single-acting engine or motor, both connected to a single shaft, the heating device being carried adjacent to the cylinders of both the engine and compressor, whereby a very simple, compact and light apparatus will be secured.

In order to improve the efficiency of the apparatus, I employ roller or wheel bearings for the shaft and for the cross-heads of the compressor and motor, and by means of which friction will be reduced to a minimum.

In order that the invention may be better understood, I have illustrated in the accompanying drawings a good form of my present invention, and wherein figure 1 is a plan view; figure 2 a side elevation; figure 3 an end view; figure 4 a longitudinal section through the shaft and engine cylinder; figure 5 a section taken at right-angles to figure 4, the line of section being through the inlet valve of the engine; figure 6 a view taken on line 6--6 of figure 4; figure 7 a section through the compressor; figure 8 a sec-

tion on line 8--8 of figure 7; figure 9 a vertical section through the heater; and figure 10 a diagrammatic view, showing the regenerator.

In all of the above views, corresponding parts are represented by the same numerals of reference.

1 represents a base, preferably cast, from which is carried a plate 2 by the standards 3, 3. The plate 2 carries a compressor cylinder 4, an engine cylinder 5, and a heater 6. The compressor is preferably of the single-acting type, its cylinder being provided with a long plunger piston 7 therein, said piston having a series of concentric grooves 8 to form an air packing. The piston rod 9 of the compressor connects with a cross-head 10 carrying the anti-friction rollers 11, which work in the guides 12 bolted preferably with the plate 2, said guides being connected at their lower ends by the braces 13. The anti-friction rollers 11 are made as large as possible in order to reduce friction to a minimum. The connecting rod 14 of the compressor connects the cross-head 10 with the crank 15 of the shaft 16. The top of the compressor cylinder 4 is provided with a cast head 17 made hollow (see figure 7), with a diaphragm 18 separating the inlet and discharge chambers. The inlet chamber is provided with a port 19 opening into the cylinder and normally closed by an inlet valve 20 of well known form, the valve and its casing being introduced into the inlet chamber through the plugged opening 21. In the outlet chamber is normally seated a discharge valve 22, which may be introduced through the plugged opening 23. Both the inlet valve and discharge valve 20 and 22 respectively are normally maintained seated by spring pressure, as shown.

The engine cylinder 5 is, like the compressor, also preferably single-acting, and is provided with a jacket 24

and a plunger piston having a suitable air packing, as shown. Preferably this piston is filled with a packing of mineral wool or other suitable non-conducting material, as illustrated, in order to prevent loss of heat by radiation. The piston rod 25 of the engine cylinder connects with a cross-head 26 similar in all respects to the cross-head 10 and provided with antifriction rollers 27 which work in the guides 28. The connecting rod 29 connects the cross-head 26 to the crank 30 on the shaft 16. The cranks 16 and 30 are preferably so disposed that as the engine piston starts on its operative or down stroke, the piston 7 of the compressor will start on its operative or up stroke, the intention being to oppose the greatest resistance at the compressor with the greatest effective energy at the engine cylinder. The engine cylinder 5 carries a relatively small valve casing 31 provided with an inlet opening 32 connected with the ports 33, 33, as shown. Loading into the engine cylinder 5 is an inlet port 34, and normally covering said port is a piston valve 35 which works in the valve casing 31 between the ports 33, 33, whereby the said piston valve will be always balanced in said valve casing. The valve 35 is operated by an air-packed valve rod 36 connected at its outer end to an arm 37 mounted on the rock shaft 38, said rock shaft carrying an arm 39, which connects by a rod 40 with a lever 41 having an antifriction roller 42 at its end working on a cam 43 carried by the shaft 16. ^{*the front of the lever 41 is carried by a suitable supporting bracket 44*} A spring 44 maintains the roller 42 always in contact with the cam 43. The cam 43 is so formed that at each rotation of the shaft 16, the valve 35 will open and close the inlet port 34, the opening taking place at the commencement of the down stroke of the piston, and the closing of the inlet port being effected after the piston has partially completed that stroke, whereby

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an expansion effect will take place, as will be explained. The engine cylinder 5 is provided with an exhaust port 45 normally covered by a valve 46. The stem of the valve 46 connects with a lever 47, the other end of which connects by a rod 48 to an arm 49 carried on the rock shaft 50. An arm 51 on the other end of this rock shaft connects by a rod 52 with a lever 53 carrying a roller 54 which works on the cam 55 also carried by the shaft 16 at the side of the cam 43. ^{The pivot of the lever 53 is carried by the support 44.} A spring 56 is employed to keep the roller 54 in constant engagement with the cam 55. The cam 55 is so proportioned as to open the valve 46 on the up stroke of the engine piston, and to keep it open during the entire up stroke. If desired, an exhaust pipe 57 may connect with the exhaust port 45 and lead to any desired place, the lever 47 working in a slot in said pipe. Preferably, however, the exhaust pipe 57 leads through a regenerator, as shown in figure 10, and as will be explained, whereby a saving in the operation will be effected, by absorbing heat from the products of the exhaust.

^{Heater} The heater 6 is of the general type described in my application for patent before referred to. It consists of a cylinder 58 provided with a grate or grid 59 therein, on which is placed a quantity of preferably solid combustible ^{such as very fine pea or anthracite coal or coke.} I prefer to use a solid combustible for this purpose, since the products of combustion are practically free from deposit, and hence do not clog or otherwise interfere with the proper operation of the motor. The cylinder is provided with a bottom 60 bolted in place and having a central opening therein through which ash may be removed. This opening is adapted to be closed by a cover 61 secured in place by a screw 62 working in a bridge-piece 63. The top of the cylinder

58 is provided with a similar cover 54 secured in position in the same way. Surrounding the cylinder 58 is a jacket 65, whereby a heating chamber 66 will be formed on the outside of said cylinder. A pipe 67 leads into said heating chamber at one side, and a pipe 68 leads out of the said chamber diametrically opposite thereto. A by-pass pipe 69 leads from the pipe 67 into the bottom 60 of the heater, and a corresponding pipe 70 leads from the top of the heater into the pipe 68. A valve 71 is interposed in the pipe 67 so as to cause a drop in the pressure between the pipe 67 and the pipe 68, and thereby produce a flow of air through the by-pass pipe 69, heater 6 and pipe 70. The pipe 69 is preferably provided with a valve 72 therein, which may be closed when a new quantity of combustible material is to be placed within the cylinder 58.

The arrangement of piping when a regenerator is not used is shown particularly in figure 1. An inlet pipe 73 leads to the inlet chamber of the compressor, and an outlet pipe 74 leads from the outlet side of the compressor to a suitable receiver or reservoir 75, in which a supply of compressed air will be maintained. I prefer to use a receiver or reservoir interposed between the compressor and heater in order that smoothness of operation may be secured, and to prevent the heater from being directly subjected to the intermittently recurring action of the compressor. The receiver 75 acts in the apparatus in very much the same way as the air cylinder of a force pump, allowing a practically uniform flow of air at a substantially constant pressure to pass into the heater. From the receiver or reservoir 75 the pipe 67 leads to the heater, and from the heater the pipe 68 leads into the jacket 24 of the engine. From the jacket 24 at a diametric point a pipe 76 leads to the valve chamber 31 of the engine.

Instead of connecting the exhaust pipe 57 directly with the atmosphere, I prefer to direct the exhaust through a regenerator interposed between the receiver or reservoir and the heater, in order that heat may be absorbed from the products of the exhaust and an economy in that respect thereby effected. Such an arrangement is shown particularly in figure 10, wherein the pipe 67 is divided into a plurality of branches 77, each branch being provided with a jacket 78 connected with the exhaust pipe 57, as shown. In this way, most of the heat carried by the products of the exhaust will be absorbed by the relatively cold air passing from the receiver to the heater. I prefer to employ a regenerator of this general type, wherein the hot exhaust air travels in an opposite direction from the incoming cold air, since in this way the exhaust air will during its passage through the regenerator be constantly subjected to fresh quantities of cold air and the heat will be more effectively extracted therefrom than if the reverse operation took place.

In the operation of all hot air engines with which I am familiar and which, so far as I know, offer the closest analogy in general type to my present device, the effective horse power at the shaft has been always enormously lower than the indicated horse power in the cylinder. This loss of power is due to the friction which is necessarily generated in engines having a relatively large mass. In order that an economy may be effected in this respect, I provide the working parts of my improved engine with wheel or roller bearings, whereby friction will be very greatly reduced. To this end, I provide the cross-heads of the engine and compressor cylinders with wheel or roller bearings, as I have already explained, and I interpose between the upper ends of the connecting rods of both the engine and compress-

or and the respective cross-heads thereof a roller bearing 79 (see particularly figures 4 and 5), and between the lower end of said connecting rod and the respective crank a roller bearing 80 is used, and I carry the main shaft 16 in wheel or roller bearings 81 mounted in dust-proof boxes 82 (see figure 4). In order further to reduce friction, I dispense with packing rings on the pistons of the engine and compressor cylinders and utilize instead thereof the concentric grooves already described, which constitute air packings, and I finally prefer to air-pack the stem 36 of the main engine valve for the same reason, and also the valve itself, as shown. By thus dispensing with all friction-creating packings, and by providing the working parts of the engine with wheel or roller bearings, as explained, I am enabled to produce a device of this general type, wherein a very much less disparity between the effective and indicated horse powers will be secured than with any hot air or similar engine heretofore constructed.

In order to secure uniformity of rotation of the shaft 16, I employ one or more fly-wheels secured to said shaft, as shown.

The operation of the device will be as follows:- A suitable, preferably solid, combustible, of which instances have been given, is placed on the grid or grate 59 of the heater 6, and said combustible is ignited in any suitable way, as for instance by burning waste, after which the cover 64 is placed in position and clamped down so as to exclude exterior air from the cylinder 58. The shaft 16 is now given a few turns by hand or in any other suitable way, and the compressor will be started. At each down stroke of the compressor, air will be drawn through the pipe 73, past the valve 20 into the compressor cylinder, and on each up stroke

the air will be forced out through the valve 22 into the reservoir or receiver 75, and the air therein will be placed under pressure. In order to increase the efficiency of the compressor, it is obvious that it should be maintained as cool as possible, whereby the heat due to compression may be permitted to radiate therefrom. For this purpose it may be cooled by a water jacket in the well known way, but preferably it is provided with a series of cooling wings 63 (figure 8), as is common. The compressed air from the reservoir or receiver encounters a resistance at the valve 71, and a part of the air will therefore be forced through the pipe 69 into the cylinder 58 in direct contact with the burning combustible material, and heat therefrom will therefore be imparted directly to the air. The air from the chamber 58 passes out through the pipe 70, and in entering the pipe 68 meets and mingles with the remaining portion of the air from which it was deflected, which portion has reached the pipe 68 by passing through the heating chamber 66 around the cylinder 58. In passing through the heating chamber, the air will be heated by radiation and convection, as will be understood. By regulating the valve 71, any desired drop in pressure may be produced between the pipe 67 and the pipe 68, and in consequence any desired quantity of the air may be deflected to the heater. I find from experience that it is only necessary to deflect through the heater a very small quantity of the air, only sufficient to support combustion, but that the amount of heat absorbed directly therein will be a very much greater proportion than will be absorbed by the air from which it was deflected by radiation and convection in the heating chamber 66. The highly heated air from the heater enters the pipe 68 and passes into the space enclosed by the jacket 24 of the en-

gine so as to impart heat to the cylinder 5, and from the jacket the air passes into the valve chamber 31. At the commencement of the down stroke, the compressed air, from which some heat has been extracted in the jacket 24, enters the cylinder 5 to force the piston thereof downwards, and after said piston has moved part way on its stroke, the valve 35 will be closed so as to cut off the air. For the completion of the operative stroke of the engine, I rely upon the expansion of the air in the cylinder due to the absorption of heat from the heated walls of the cylinder, so that when the operative stroke of the piston has been completed, the temperature of the air therein will be much reduced. On the up stroke, the cam 55 opens the exhaust valve 46, and the air from the cylinder will be forced out of the same. When a regenerator is employed, the air from the engine cylinder will be directed through the jackets 78, so that heat from the exhaust air will be extracted therefrom and absorbed by the cold air passing from the reservoir into the heater.

The cycle above described will be repeated throughout the operation of the engine. By regulating the valve 71 to adjust the flow of air through the heater, the consumption of the combustible therein can be regulated and the speed of the engine thus adjusted. When it is desired to replenish the supply of combustible material, the valves 71 and 72 are closed so as to cut off the engine and maintain the supply of air in the reservoir 75, after which the cap 64 is removed and the fresh material deposited upon the grid or grate 59. If any considerable quantity of ash accumulates in the bottom of the heater, it may be removed at this time through the cap 61. If desired, the pipe 70 may be provided with a valve corresponding to the valve 72, so that

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during the operation of replenishing the supply of combustible material, both of said valves may be closed and the valve 71 allowed to remain open. In this way sufficient heat will be received from the walls of the heater 6 as to keep the engine in operation for the short time required to supply the desired combustible material.

Having now described my invention, what I claim as new therein and desire to secure by Letters Patent is as follows:

1. In a combustion engine, the combination of an engine cylinder, an air compressor, and a heater for heating the compressed air prior to its admission to the engine cylinder, said heater being supplied with a solid combustible and the air being directed into actual contact with said combustible to support combustion thereof, substantially as set forth.

2. In a combustion engine, the combination of an engine cylinder, an air compressor, a heater for heating the compressed air prior to its admission to the engine cylinder, said heater being supplied with a solid combustible and the air being directed into actual contact with said combustible to support combustion thereof, and a regenerator located between the compressor and heater and connected with the engine exhaust, substantially as set forth.

3. In a combustion engine, the combination of an engine cylinder, an air compressor, and a heater for heating the compressed air prior to its admission to the engine cylinder, said heater being supplied with a solid combustible, a part of the air being directed into actual contact with the combustible to support combustion thereof and the remaining portion of the air being directed into proximity with

the combustible so as to be heated by radiation and convection, the air thus directly and indirectly heated being reunited before entering the engine cylinder, substantially as set forth.

4. In a combustion engine, the combination of an engine cylinder, an air compressor operated therefrom, and a heater for heating the compressed air prior to its admission to the engine cylinder, said heater being supplied with a solid combustible and the air being directed into actual contact with said combustible to support combustion thereof, substantially as set forth.

5. In a combustion engine, the combination of an engine cylinder, an air compressor operated therefrom, and a heater for heating the compressed air prior to its admission to the engine cylinder, said heater being supplied with a solid combustible, a part of the air being directed into actual contact with the combustible to support combustion thereof and the remaining portion of the air being directed into proximity with the combustible so as to be heated by radiation and convection, the air thus directly and indirectly heated being reunited before entering the engine cylinder, substantially as set forth.

6. In a combustion engine, the combination of an engine cylinder, a compressor operated therefrom, a receiver connected with said compressor, and a heater between the receiver and the engine cylinder, substantially as set forth.

7. In a combustion engine, the combination of an engine cylinder, a compressor operated therefrom, a receiver connected with said compressor, a heater between the receiver and the engine cylinder, and a regenerator between the receiver and heater and connected with the exhaust of the engine, substantially as set forth.

8. In a combustion engine, the combination of an

engine cylinder, a compressor operated therefrom, a receiver connected with said compressor, and a heater supplied with a burning combustible, air from the receiver being directed into actual contact with said combustible to support combustion thereof, substantially as set forth.

9. In a combustion engine, the combination of an engine cylinder, a compressor operated therefrom, means for cooling the compressor, and a heater between the compressor and the engine cylinder for heating the compressed air before its admission into the engine cylinder, substantially as set forth.

10. In a combustion engine, the combination of an engine cylinder, a heating chamber surrounding the same, a heater for heating air, a conduit for conducting the heated air from the heater into the heating chamber of the engine, and a conduit for conveying the air from said heating chamber into the engine cylinder, substantially as set forth.

11. In a combustion engine, the combination of an engine cylinder, a heating chamber surrounding the same, a heater for heating air, a conduit for conducting the heated air from the heater into the heating chamber of the engine, a conduit for conveying the air from said heating chamber into the engine cylinder, and a regenerator through which the air passes before entering said heater, said regenerator being connected with the exhaust of the engine, substantially as set forth.

12. In a combustion engine, the combination of an engine cylinder, a heating chamber surrounding the same, a heater supplied with a solid combustible, means for forcing air through said burning combustible to maintain combustion thereof, a conduit for conveying the heated air from the heater to the heating chamber of the engine, and a conduit

for conveying the air from said heating chamber into the engine cylinder, substantially as set forth.

4 13. In a combustion engine, the combination of an engine cylinder, a heating chamber surrounding the same, a compressor operated by the engine, a heater, a conduit connecting the compressor with the heater, a conduit connecting the heater with the heating chamber of the engine cylinder, and a conduit connecting said heating chamber with the engine cylinder, substantially as set forth.

5 14. In a combustion engine, the combination of an engine cylinder, a heating chamber surrounding the same, a compressor operated by the engine, a heater, a conduit connecting the compressor with the heater, a regenerator in said conduit connected with the engine cylinder, a conduit connecting the heater with the heating chamber of the engine cylinder, and a conduit connecting said heating chamber with the engine cylinder, substantially as set forth.

6 15. In a combustion engine, the combination of an engine cylinder, a heating chamber surrounding the same, a heater supplied with a solid combustible, a compressor operated by the engine cylinder, a conduit connecting the compressor with the interior of the heater, whereby air from the compressor will be directed into contact with the burning combustible to support combustion thereof, a conduit connecting the interior of the heater with the heating chamber of the engine cylinder, and a conduit connecting said heating chamber with the engine cylinder, substantially as set forth.

7 16. In a combustion engine, the combination of an engine cylinder, a heating chamber surrounding the same, a heater supplied with a solid combustible, a jacket surrounding said heater, a conduit for conveying air within said

jacket, a conduit for conveying air from the jacket to the heating chamber of the engine cylinder, a by-pass extending between said conduits and including the interior of the heater for conveying a portion of the air into direct contact with the burning combustible to support combustion thereof, and a conduit connecting the heating chamber of the engine cylinder with the interior of said cylinder, substantially as set forth.

17. In a combustion engine, the combination of an engine cylinder, a heating chamber surrounding the same, a heater supplied with a solid combustible, a jacket surrounding said heater, a conduit for conveying air within said jacket, a conduit for conveying air from the jacket to the heating chamber of the engine cylinder, a by-pass extending between said conduits and including the interior of the heater for conveying a portion of the air into direct contact with the burning combustible to support combustion thereof, a conduit connecting the heating chamber of the engine cylinder with the interior of said cylinder, and a compressor operated by the engine cylinder for supplying air to the heater, substantially as set forth.

16. In a combustion engine, the combination of an engine cylinder, a heating chamber surrounding the same, a heater supplied with a solid combustible, a jacket surrounding said heater, a conduit for conveying air within said jacket, a conduit for conveying air from the jacket to the heating chamber of the engine cylinder, a by-pass extending between said conduits and including the interior of the heater for conveying a portion of the air into direct contact with the burning combustible to support combustion thereof, a conduit connecting the heating chamber of the engine cylinder with the interior of said cylinder, a compressor operated by the engine cylinder for supplying air to the

heater, and a receiver between the compressor and said heater, substantially as set forth.

19. In a combustion engine, the combination of an engine cylinder, a heating chamber surrounding the same, a ^{independent and outside of said heating chamber} heater for heating air, a conduit connecting the heater with said heating chamber, a conduit connecting the heating chamber with the interior of the cylinder, and a valve for admitting air from the heating chamber into the engine cylinder during a part only of its operative stroke, whereby an expansion effect thereof will be secured, substantially as set forth.

20. In a combustion engine, the combination of an engine cylinder, a heating chamber surrounding the same, a ^{independent and outside of said heating chamber} heater for heating air, a conduit connecting the heater with said heating chamber, a conduit connecting the heating chamber with the interior of the cylinder, a valve for admitting air from the heating chamber into the engine cylinder during a part only of its operative stroke, whereby an expansion effect thereof will be secured, and a compressor operated by the engine for supplying air to the heater, substantially as set forth.

21. In a combustion engine, the combination of an engine cylinder, a heating chamber surrounding the same, a ^{independent and outside of said heating chamber} heater for heating air, a conduit connecting the heater with said heating chamber, a conduit connecting the heating chamber with the interior of the cylinder, a valve for admitting air from the heating chamber into the engine cylinder during a part only of its operative stroke, whereby an expansion effect thereof will be secured, a compressor operated by the engine for supplying air to the heater, and a receiver between the compressor and the heater, substantially as set forth.

422. In a combustion engine, the combination of an engine cylinder, a heating chamber surrounding the same, a heater supplied with a solid burning combustible, means for directing air through the heater into direct contact with said combustible to support combustion thereof, a conduit connecting the interior of the heater to said heating chamber, a conduit connecting the heating chamber with the interior of the cylinder, and a valve adapted to admit the air from said heating chamber into the interior of the cylinder during a part only of the operative stroke of the engine, whereby an expanding effect will be secured, substantially as set forth.

523. In a combustion engine, the combination of an engine cylinder, a heating chamber surrounding the same, a heater supplied with a solid burning combustible, means for directing air through the heater into direct contact with said combustible to support combustion thereof, a conduit connecting the interior of the heater to said heating chamber, a conduit connecting the heating chamber with the interior of the cylinder, a valve adapted to admit the air from said heating chamber into the interior of the cylinder during a part only of the operative stroke of the engine, whereby an expanding effect will be secured, and a compressor operated by the engine for forcing air through said heater, substantially as set forth.

624. In a combustion engine, the combination of an engine cylinder, a heating chamber surrounding the same, a heater supplied with a solid burning combustible, means for directing air through the heater into direct contact with said combustible to support combustion thereof, a conduit connecting the interior of the heater to said heating chamber, a conduit connecting the heating chamber with the in-

terior of the cylinder, a valve adapted to admit the air from said heating chamber into the interior of the cylinder during a part only of the operative stroke of the engine, whereby an expanding effect will be secured, a compressor operated by the engine for forcing air through said heater, and a receiver between the compressor and said heater, substantially as set forth.

10
17²⁵. In a combustion engine, the combination of an engine cylinder, a heater, a jacket surrounding the heater, a conduit leading into said jacket, means for forcing air through said conduit, a conduit leading from the jacket to the engine cylinder, a by-pass connecting the first of said conduits with the second of said conduits and extending through the heater, and a valve in the first of said conduits for causing a drop in pressure of the air, whereby a portion of the air will be directed through the heater, substantially as set forth.

10
18²⁶. In a combustion engine, the combination of an engine cylinder, a heater, a jacket surrounding the heater, a conduit leading into said jacket, means for forcing air through said conduit, a conduit leading from the jacket to the engine cylinder, a by-pass connecting the first of said conduits with the second of said conduits and extending through the heater, a valve in the first of said conduits for causing a drop in pressure of the air, whereby a portion of the air will be directed through the heater, and a source of burning combustible in the heater, into direct engagement with which a portion of the air will be directed, substantially as set forth.

10
19²⁷. In a combustion engine, the combination of an engine cylinder, a heater, a jacket surrounding the heater, a conduit leading into said jacket, means for forcing air

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through said conduit, a conduit leading from the jacket to the engine cylinder, a by-pass connecting the first of said conduits with the second of said conduits and extending through the heater, a valve in the first of said conduits for causing a drop in pressure of the air, whereby a portion of the air will be directed through the heater, and a compressor operated by the engine cylinder for forcing air into the first of said conduits, substantially as set forth.

10 28. In a combustion engine, the combination of an engine cylinder, means for supplying hot air to the same, an inlet port therefor, a valve chest over the inlet port, two entrance ports into the valve chest, and a valve located between the entrance ports and normally closing the inlet port of the cylinder, whereby the valve will be maintained in balance, substantially as set forth.

29. In a combustion engine, the combination of an engine cylinder, a shaft driven therefrom, a compressor driven from said shaft, and a heater between the compressor and engine cylinder, substantially as set forth.

30. In a combustion engine, the combination of an engine cylinder, a shaft driven therefrom, a compressor driven from said shaft, a heater between the compressor and engine cylinder, and a regenerator between the compressor and heater and connected to the exhaust of the engine cylinder, substantially as set forth.

31. In a combustion engine, the combination of an engine cylinder, a shaft driven therefrom, a compressor driven from said shaft, a receiver connected with said compressor, and a heater between said receiver and engine cylinder, substantially as set forth.

32. In a combustion engine, the combination of an engine cylinder, a shaft driven therefrom, a compressor

driven from said shaft, a receiver connected with said compressor, a heater between said receiver and engine cylinder, and a regenerator between the receiver and heater and connected to the exhaust of the engine, substantially as set forth.

33. A hot air or combustion engine, provided with wheel or roller bearings on its moving parts, substantially as set forth.

10# 34. A hot air or combustion engine, having an air-packed piston and provided with wheel or roller bearings on its moving parts, substantially as set forth.

35. A hot air or combustion engine, having wheel or roller bearings on its cross-head, connecting rod and shaft, substantially as set forth.

11# 36. A hot air or combustion engine, provided with an air-packed piston, an air-packed controlling valve, and wheel or roller bearings on its moving parts, substantially as set forth.

37. In a combustion engine, the combination of an engine cylinder, means for supplying hot air thereto, a cross-head operated by the piston of said cylinder, and roller bearings carried by said cross-head, substantially as set forth.

38. In a combustion engine, the combination of an engine cylinder, means for supplying hot air thereto, a cross-head operated by the piston of said cylinder, roller bearings carried by said cross-head, a compressor operated from the engine cylinder, roller bearings carried by the cross-head of said compressor, and a heater between the compressor and said engine cylinder, substantially as set forth.

39. In a combustion engine, the combination of an engine cylinder, means for supplying hot air thereto, a cross-head connected with the piston of said cylinder, roller bearings for said cross-head, a main shaft, a crank on said shaft, a connecting rod between said cross-head and crank, and roller bearings between said connecting rod and crank, substantially as set forth.

40. In a hot air engine, the combination of an engine cylinder, means for supplying hot air thereto, a cross-head connected with the piston of said cylinder, roller bearings for said cross-head, a main shaft, a crank on said shaft, a connecting rod between said cross-head and crank, roller bearings between said connecting rod and crank, and roller bearings for said shaft, substantially as set forth.

THIS SPECIFICATION SIGNED AND WITNESSED THIS 5th DAY OF July 1899.

THOMAS A. EDISON.

Witnesses:

Thomas A. Edison

1. FRANK L. DYER

2. J. F. RANDOLPH.

Oath.

State of New Jersey
County of Essex:

} ss.:

THOMAS A. EDISON, THE ABOVE-NAMED

PETITIONER, BEING DULY SWORN, DEPOSES AND SAYS THAT HE IS A citizen
OF THE United States, and a resident of Llewellyn Park, in the
County of Essex and State of New Jersey;

THAT HE VERILY BELIEVES HIMSELF TO BE THE ORIGINAL, FIRST AND SOLE INVENTOR
OF THE IMPROVEMENT IN COMBUSTION ENGINES

DESCRIBED AND CLAIMED IN THE ANNEXED SPECIFICATION; THAT HE DOES NOT
KNOW AND DOES NOT BELIEVE THAT THE SAME WAS EVER KNOWN OR USED BEFORE
HIS INVENTION OR DISCOVERY THEREOF; OR PATENTED OR DESCRIBED IN ANY
PRINTED PUBLICATION IN THE UNITED STATES OF AMERICA OR ANY FOREIGN COUNTRY
BEFORE HIS INVENTION OR DISCOVERY THEREOF, OR MORE THAN TWO YEARS PRIOR
TO THIS APPLICATION; OR IN PUBLIC USE OR ON SALE IN THE UNITED STATES FOR
MORE THAN TWO YEARS PRIOR TO THIS APPLICATION, AND THAT NO APPLICATION
FOR FOREIGN PATENT HAS BEEN FILED BY HIM OR HIS LEGAL REPRESENTATIVES OR
ASSIGNS IN ANY FOREIGN COUNTRY.

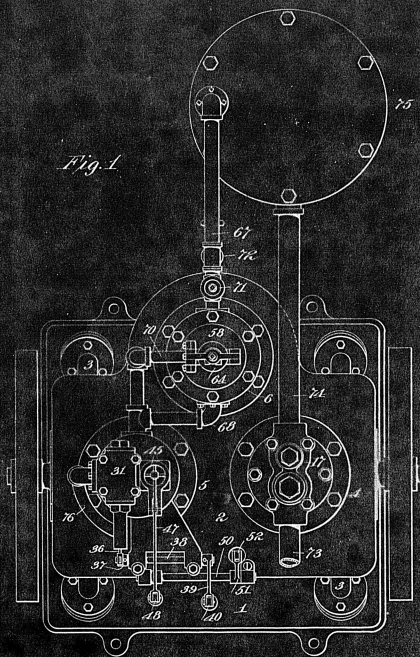
Thomas A. Edison
THOMAS A. EDISON.

SWORN TO AND SUBSCRIBED BEFORE ME THIS 5th DAY OF July 1899

(SEAL)

J. F. Randolph

NOTARY PUBLIC for
New Jersey.

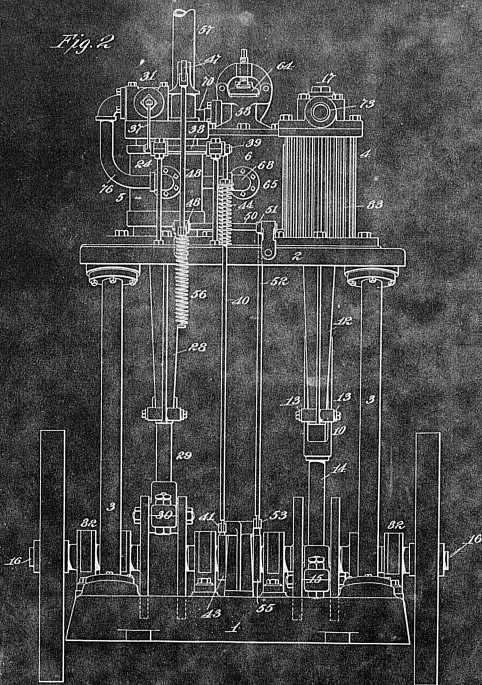


Witnesses:

Witnesses:
Jas. W. Coleman
Jno. R. Taylor

Inventor

Thomas A. Edison
Capt. H. W. Edwards
Att'ys.

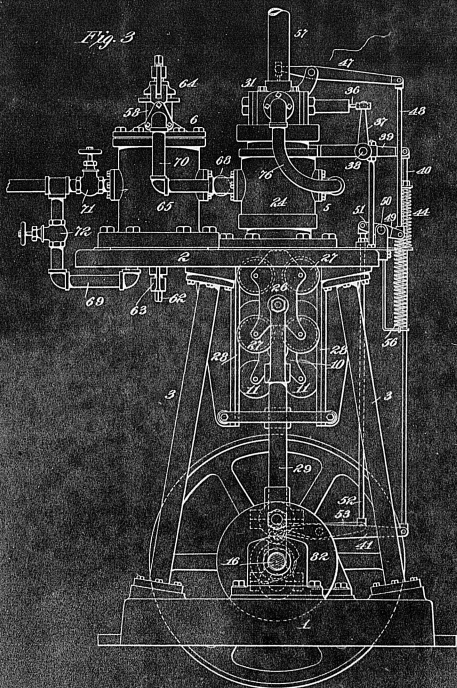


Witnesses:

Geo. F. Coleman
Geo. A. Bayless

Inventor

Thomas A. Edison
by Alger Edmunds, Atty.
 Atty's.

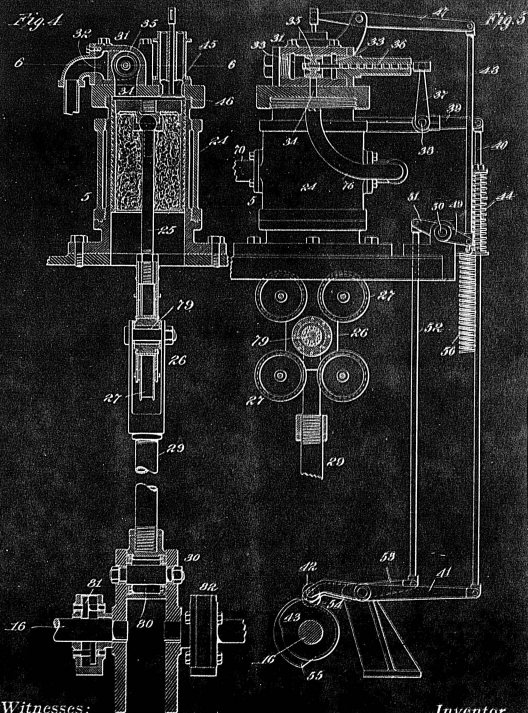


Witnesses:

Geo. F. Coleman
John A. Taylor

Inventor

Thomas A. Edison
 by *John Edmondson* Atty.



Witnesses:

John A. Edgar

John A. Edgar

Inventor

Thomas A. Edison

By Alfred Edwards, Attorney

Attys.

Fig. 6

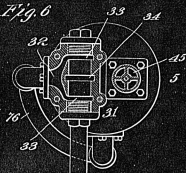


Fig. 7

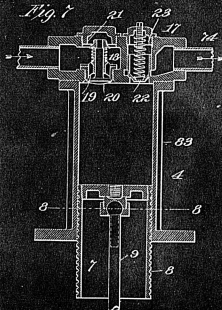


Fig. 8

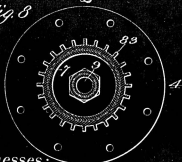
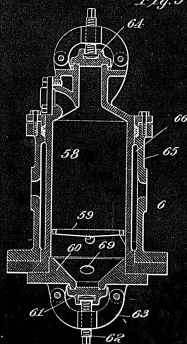


Fig. 9



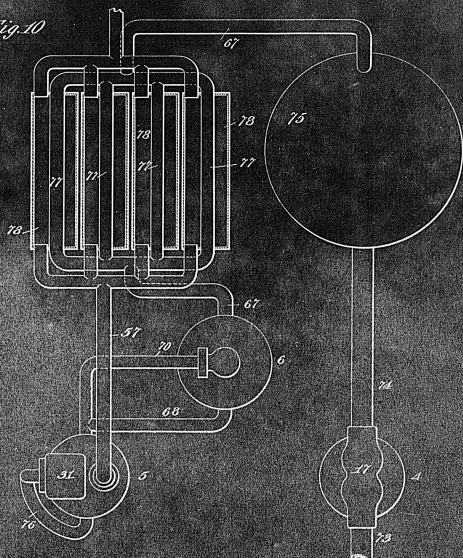
Witnesses:

Jos. E. Egan
Jno. A. Taylor

Inventor

Thomas A. Egan
By J. E. Egan & J. A. Taylor
Attys.

Fig. 10



Witnesses:

Jas. F. Coleman
Jno. A. Harper

Inventor

Thomas A. Edison
by Alfred Edmunds, Atty.

Att'y.

2-020.

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

DEPARTMENT OF THE INTERIOR,

United States Patent Office,

Washington, D. C., July 18, 1899.

SIR:

I have to acknowledge the receipt of the petition, specification, oath, and
drawing of your alleged improvement in

Combustion Engine.

with Fifteen Dollars as the first fee payable thereon.

The papers are duly filed, and your application for a patent will be taken up
for examination in its order

You will be duly advised of the examination.

Very respectfully,

Case will be taken up for
examination in about six weeks.

C. H. Driell
Commissioner of Patents.

T. A. Edison.

By J. J. Edwards & J. J. J.
31 Nassau St., N. Y. City.

Any communication respecting this application should give the serial number, date of filing, and title of invention.

NOTE.—In order to constitute an application for a patent, the inventor is by law required to furnish his petition, specification,
oath, and drawings (where the nature of the case admits of drawings) and to pay the required fee.

No application is considered as complete, nor can any official action be had thereon, until all its parts, as here specified, are
furnished in due form by the inventor or applicant.



657—If payment is made by check or draft, the credit granted is subject to the collection of the same.

Call's Address
"Edison, New York."

From the Laboratory
of
Thomas A. Edison.

PHONOGRAPH DICTATION.

Orange, N.J., July 19, 1899

Messrs. Dyer, Edmonds & Dyer,
31 Nassau Street,
New York.



Dear Sirs:

In reply to your favor of the 15th inst., I beg to en-
close you herewith the blue prints and drawings mentioned in your
letter.

Yours truly,
J. D. Randolph



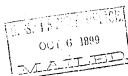
Room No. 35.
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

All communications respecting this M.
application, and give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

WASHINGTON, D. C., Oct. 6, 1899.

Thomas A. Edison,
C/o Dyer, Edmonds & Dyer,
#31 Nassau st.,
N. Y. City.



Please find below a communication from the EXAMINER in charge of your application.

Combustion Engines, Filed July 18, 1899, Serial #724,246.

C. H. Duell
Commissioner of Patents.

The pivotal supports for levers 41 and 53, shown in figure 5, should be lettered and described.

On page 1, lines 5-6, the words "case No. 1010" should be canceled.

The description from line 19 of page 1 to line 13 of page 2 is indistinct. It is understood that the heat imparted to the compressed air would add to the total energy, but it is not clearly brought out how such addition of heat would result "in a very great increase of the efficiency thereof".

The description of the packing grooves as "concentric grooves" is objected to as incorrect; the several grooves do not have a common center.

The description on page 4, lines 10 - 15, is indistinct.

~~If the description on page 5, lines 24-28, is meant to state that~~

~~RULE 73. In every amendment the exact word or words to be stricken out or inserted in the application must be specified and the precise point indicated where the emendation is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper.~~

Case No. 7 Paper No. 1

a solid combustible contains less volatile hydrocarbons than a fluid combustible, it should be amended to clearly so state; at present, its meaning is not clear.

The several statements throughout the description that the valve 71 is for the purpose of causing a drop in the pressure between pipe 67 and pipe 68 are objected to as indistinct.

The matter contained on page 8, lines 16 - 18, is wholly in the nature of advertisement of applicant's apparatus, and should therefore be canceled.

The description on page 10, lines 7 - 13, is indistinct and partly incorrect. Since the walls of the cylinder can be no hotter than the air which has imparted heat thereto, they cannot impart heat to said air until the temperature of the air has been lowered by expansion. The initial expansion of the air is due to the heat contained in it, but, of course, after the air has cooled down in expanding a small amount of heat would be absorbed from the cylinder walls.

In the several claims which cover the engine cylinder, air compressor, heater, or receiver, the connections between these elements should be directly included.

The words "said heater being supplied with a solid combustible" occurring in the claims, is not a proper patentable limitation, and should be canceled.

The words "air being directed", occurring in many of the claims, are objected to as indistinct and functional; the means for "directing" the air in the manner referred to should be directly included in such claims.

Claim 11 is indistinct and functional in the words, "a regenerator

#724,246.

-3-

through which the air passes before entering said heater".

Claims 19, 20, 21 are indistinct and functional in the words "a valve for admitting air...into the engine cylinder during a part only of its operative stroke"; the construction and arrangement by which the valve is enabled to perform its function should be specified in the claims.

Claims 22, 23, 24, are indistinct and functional in the words "a valve adapted to admit air...during a part only of the operative stroke of the engine".

Claims 25, 26, 27 are indistinct in the words "a valve...for causing a drop in the pressure of the air, thereby a portion of the air will be directed through the heater".

Claims 29, 30, 31, 32 are functional in the words "a shaft driven therefrom", "a compressor driven from said shaft"; the connections for driving the shaft and compressor should be directly included in the claims.

Claims 34, 36 are indistinct in the words "air packed piston".

Claim 36 is further indistinct in the words "air packed controlling valve".

Claims 1, 4, and 29 are rejected on: -

✓ # 10,061, Oct. 4, 1853, Woodbury et.al.;

✓ # 33,799, Nov. 26, 1861, Shaw;

✓ #120,325, Oct. 24, 1871, Rider;

✓ #224,772, Feb. 24, 1880, Fell;

✓ #248,688, Oct. 25, 1881, Anderson;

(Air and gas Engines, Caloric).

Case No. 2 Paper No. 1

724,246.

-4-

Claims 2, 6, 7, 8, 30 and 32 are rejected on Woodbury, Shaw, and Fell, cited.

Claims 3, 5, 25, 26 and 27 are rejected on Shaw, Fell, Rider, and Anderson, cited.

Claim 9 is rejected on the references cited against claim 1, taken with: -

✓ #324,060, Aug. 11, 1885, Woodbury et al.;

✓ #538,068, April 23, 1895, Penney;

(Air and Gas Engines, Caloric).

There would be no invention in providing the compressors of the first group of references with cooling means; such an arrangement being common, as shown, by Woodbury (324,060) and Penney, cited.

Claim 9 is further rejected on: -

✓ #569,672, Oct. 20, 1896, Von Querfurth;

(Air and Gas Engines, Caloric).

Claims 10, 13, 19, 20, and 21 are rejected on Von Querfurth, cited, and on: -

✓ #373,820, Nov. 29, 1887, Eckerson;

(Air and Gas Engines, Caloric).

Claims 11 and 14 are rejected on the references cited against claim 10, taken with Woodbury (10,081), Shaw, and Fell, cited.

Claims 12, 15, 22, 23 and 24 are rejected on Von Querfurth, cited.

Claims 16 and 17 are rejected on Anderson, Rider, Shaw, and Fell, cited. There would be no invention in providing the cylinders of the references with heating jackets; such a construction being common, as shown, for example, by Eckerson and Von Querfurth, of record.

#724,246.

-5-

Claim 18 is rejected on Shaw, Fell, and Von Querfurth, cited.

Claim 28 is rejected on Eckerson, and Von Querfurth, cited, and on:

✓ #429,282, June 3, 1890, McTighe

(Air and gas Engines, Caloric).

Claim 31 is rejected on Woodbury (10,081) Von Querfurth, Eckerson, Fell, and Shaw, cited.

Claims 33, 35, 37, 38, 39, and 40 are rejected on the references cited. It does not constitute invention to provide the moving parts of any apparatus with roller bearings for the purpose of reducing friction.

Claims 34 and 36 are rejected on : -

✓ #232,158, Sept. 14, 1880, Waterhouse et.al.,

(Air and gas Engines, Caloric).

As to claim 36, there would be no invention in substituting the common form of packing grooves for the valve-stem packing in Waterhouse engine.

G.A.

THOMAS A. EDISON :
COMBUSTION ENGINES :
FILED JULY 18, 1899 : ROOM NO. 36.
SERIAL NO. 724,246 :

HONORABLE COMMISSIONER OF PATENTS,

S I R :-

Please amend as follows:

Page 4, line 26, after "16" insert ----- The pivot of the lever 41 is carried by a suitable supporting bracket 41' -----

The Official draftsman will please mark the bracket which supports the pivot of the lever 41 with the reference numeral 41', and charge the same to our account.

Page 5, line 8, after "43" insert ----- The pivot of the lever 43 is carried by the support 41' -----

We note that the Examiner objects to the words "case No. 1010" on page 1 of the specification. We call his attention to the fact that all of applicant's applications are identified by applicant's own case number, and that no objection whatever to this practice has been raised.

By the matter on pages 1 and 2 which the Examiner does not understand, we mean that the imparting of heat to the compressed air permits the latter to operate an engine, which in turn operates the compressor with surplus energy for accomplishing work.

Page 4, line 11, erase the word "concentric".

The matter on page 4 which the Examiner does not understand, means that since the engine and compressor are both single-acting, the cranks should be so disposed that the compressor piston will move on its compression stroke as the engine piston moves on its down or expansion stroke.

Page 5, line 26, erase "deposit" and substitute ----

volatile hydrocarbons ----

We do not see why the Examiner objects to the statements in the description that the valve 71 is employed for the purpose of causing a drop in the pressure between the pipe 67 and the outlet pipe 68. This is the true function of the valve in question. If the valve were not used, hardly any air would be deflected through the heater, since the passage around the jacket would be of very much less resistance. By employing the valve 71, a choking effect is secured, whereby there will be a drop in the pressure beyond the valve in just the same way as when a pressure-reducing valve is employed.

If the matter on page 8 to which the Examiner objects is incorrect, we will erase it; if it is correct, we see no objection to it. So far as applicant knows, he is the first person to employ wheel or roller bearings in engines of this type; so that we think there is ample basis for the statement in question.

As we understand it, the statement of the Examiner criticising the matter on page 10, conveys exactly the meaning which we wish to convey by the matter in question. The walls of the cylinder are heated by the heated air surrounding them, and excluding losses by radiation etc., the temperature of the cylinder walls would normally equal the temperature of the surrounding heated air. As the air in the cylinder expands and its temperature is reduced, it absorbs heat from the cylinder walls, and hence performs an added increment of work.

We note that the Examiner objects to the words "said heater being supplied with a solid combustible", occurring in the claims. In applicant's former application Serial No. 706,976 referred to in the introductory portion of the specification, the claims were appealed to the Examiners in

Chief and were expressly limited to the solid combustible material. After the appeal in the application in question was decided, a divisional application was filed on the apparatus, and the present Examiner requested us to furnish an additional view actually showing the solid combustible. We believe therefore that this objection should be withdrawn.

Erase claims 1 to 18 inclusive, 29 to 33 inclusive, 36, and 37 to 40 inclusive, and change the numerals of the remaining claims to 1 to 12 inclusive.

We note that the Examiner rejects present claims 1 to 6 inclusive (former 19 to 24) on the patent to Von Querfurth and the patent to Ekerson. All of these claims are limited to the operation of the admission valve in such a way as to produce an expansion effect. We do not find any similar description in either of the references. Furthermore, present claims 3 and 6 are specifically limited in the combination to a receiver between the compressor and engine cylinder. Neither of the references show this feature of the combination. Furthermore, the fourth, fifth and sixth claims are limited to the employment of a heater of the type burning a solid combustible, into direct contact with which the air is admitted. Neither of the references is of this character.

The 7th, 8th and 9th claims are all limited specifically to the employment of the valve in the conduit leading into the jacket of the heater, by which a drop in pressure will be secured beyond the jacket to effect a revoluble flow of air through the solid combustible irrespective of the resistance thereto. This seems to be an entirely new feature in the combination. In the Anderson patent, air is admitted to a jacket around the heater, and from the jacket it divides, part going beneath the grate and part above the grate. The opening above the grate is never closed, while

the opening below the grate can be regulated. The Examiner will therefore see that if for any reason the grate became obstructed, all the air would tend to flow above it. With applicant's suggestion, by interposing a valve in the pipe leading to the jacket, the jacket can be almost entirely cut off, so as to cause the entire pressure to pass through the grate. In the Rider patent, all the air from the compressor passes through the grate, and the only valve which is used merely regulates the single stream of air. In the Fell patent all of the air passes into the heating chamber, and a single valve is employed for regulating the flow into the same. In the Shaw patent a shunt is provided around the grate through which air can be deflected, a damper being employed in the heating chamber to cut off the products of combustion therefrom. Although this damper does to a certain extent regulate the flow of air through the grate, it is not located as claimed, and does not provide for a drop in pressure as explained. By employing a regulating valve in the conduit leading to the heater, as covered in the claims, a perfect regulation is secured, while the valve is not subjected to the intense heat of the heating chamber, as is the case with the damper of the Shaw patent.

We note that the Examiner rejects the 10th claim (former 28th) upon the patents to Bakerson and Von Querfurth in connection with the patent to McTighe. The latter reference, we submit, does not show the special construction of admission valve which is made the subject of the claim. The claim in question calls for a valve chest having two entrance ports and an outlet leading into the cylinder, with a valve normally closing the outlet and located between the two entrance ports so as to be maintained in a balanced condition. We do not find the equivalent of this construction in the McTighe patent, and if the Examiner insists upon this refer-

ence, we request that its pertinence be indicated under the rules.

Regarding claims 11 and 12 (former 34 and 36), against which the patent to Waterhouse et al has been cited, we respectfully request reconsideration thereof. So far as applicant knows, he is the first to employ antifriction bearings in a combustion engine. We submit that when in addition to this suggestion the further suggestion of employing airtight pistons and valves is made to produce a device wherein friction is reduced to a minimum, a sufficient basis for an allowable claim is laid.

Very respectfully,

THOMAS A. EDISON,

By _____

His Attorneys.

New York, August 2, 1900.

2-246.

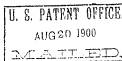
Room No. 31,
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

All communications respecting this application should give the serial number, date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

WASHINGTON, D. C., Aug. 20, 1900.

Thos. A. Edison,
C/o Dyer, Edmonds & Dyer,
#31 Nassau st.,
N. Y. City.



Please find below a communication from the EXAMINER in charge of your application.



Combustion Engines, filed July 10, 1899, Serial #724,246.

C. H. Duell
Commissioner of Patents.

The criticism urged against the description on page 10 in the Patent Office letter is still adhered to. It would seem that the air contains so much heat which may be imparted to the engine either in heating the walls of the cylinder or in doing work directly in the cylinder and it is immaterial whether or not the heat is first given out to the cylinder walls and the remaining heat utilized in doing work, or whether all the heat is utilized in doing work.

Claims 1, 2 and 3 are rejected upon the references of record. The valve set forth in these claims for cutting off the supply of air before the end of the stroke is common in all steam engines.

Claims 4, 5 and 6 are rejected being aggregations since it is thought that the peculiar kind of heater bears no relation to the engine system.

Case No. 2 Paper No. 2

RULE 73. In every amendment the exact word or words to be stricken out or inserted in the application must be specified and the precise point indicated where the emendation or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper.

In every application for a patent filed subsequent to December 31, 1897, responsive action must be made by the Commissioner of Patents over the last office action or the case will become abandoned.

#724,246.

M.

Claims 7, 8 and 9 are rejected upon the references of record.

Claim 10 is for a valve gear construction while the remaining claims are for a caloric engine. These are separate and distinct inventions and should be the subject matter of separate applications. For this reason no further action will be taken until claim 10 is divided out of this case.

Claims 11 and 12 are rejected being an aggregation between the peculiar kind of piston and a peculiar kind of bearing and further the same does not amount to invention in view of roller bearings used in analogous connections in: -

Diamond, #473,829, April 6, 1892;
(Bicycles, Forks, Spring).

W.A.H.

Case No. 3 Paper No. 3

THOMAS A. EDISON
COMBUSTION ENGINE
FILED JULY 18, 1899
SERIAL NO. 724,246

ROOM NO. 35.

HONORABLE COMMISSIONER OF PATENTS,

S I R :—

We note that the Examiner still criticises the description on page 10, but as we understand his criticism it only questions the expediency of applicant's construction and not its operativeness. Since the air in the jacket 24 is of the maximum temperature, and since the air expanded in the cylinder is of reduced temperature, it seems inevitable that there will be a conduction of heat through the cylinder walls, producing an increased expansive effect in the expanding air. Such an operation we believe would take place, but as to its relative efficiency, no opinion is expressed.

We note that the Examiner still rejects claims 1 to 9 inclusive on the references of record. We have examined the references and have compared them carefully with the rejected claims. After making such comparison we are still of the opinion that the claims should be allowed, and therefore ask that they may be reconsidered.

So far as claim 10 is concerned, we take issue with the Examiner in his ruling that the claim covers only "a valve gear construction". In drawing the claim we took pains to include in the combination the necessary operative parts with which the valve cooperates for the production of a complete combustion engine. Reconsideration of the Examiner's ruling on this claim is therefore requested.

We note that the Examiner now rejects the 11th and 12th claims on the ground of aggregation. We call his attention, however, to the fact that by the adoption of the double expedient of air packing the piston and valves and using roller bearings on the moving parts, the element of friction is very greatly reduced and an engine obtained of materially increased efficiency. The citation by the Examiner of the patent to Diamond does not strike us as being pertinent, since the reference is entirely outside of the art with which applicant is dealing.

Should the Examiner adhere to his rejection of the 10th claim, it is asked that such action thereon be taken as will permit the question of division to be brought to the attention of the Commissioner on petition. Should he still reject the remaining claims, it is asked that such action be taken as will permit an appeal.

Very respectfully,

THOMAS A. EDISON,

By _____

His Attorneys.

New York, August 6, 1901.

Case No. 7 Paper No. 14

2-246.

Room No. 89.

All communications should be addressed to
The Commissioner of Patents,
Washington, D. C.

All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,

UNITED STATES PATENT OFFICE,

WASHINGTON, D. C., September 16, 1901.

T. A. Edison,
C/o Dyer, Edmonds & Dyer,
Edison Laboratory,
Orange, N. J.



Please find below a communication from the EXAMINER in charge of your application.

Serial No. 724,246; filed July 18, 1899; "Combustion Engine".

F. J. Allen

Commissioner of Patents.

This case, as amended August 9th, has been considered.

It is still thought that claim 10 covers subject-matter independent of that covered by the other claims. The previous office action as to division is therefore repeated. It is noted, however, that the said claim is apparently anticipated by the patent to Millholland, 92,630, July 13, 1869, (Steam Valves, Piston valves).

Applicant's post office address should be stated in the petition.

In line 15, page 3, "with" should read to.

The reference numeral 41 should be placed upon fig. 5.

The laudatory passage contained in lines 16 to 28, page 8, is unnecessary to a full presentation of the alleged invention,

Case No. 724,246 Paper No. 1

RULE 72. In every amendment the exact words or words to be stricken out or inserted in the application must be printed and the precise parts indicated where the change is to be made. All such amendments must be on sheets of paper separate from the paper previously filed, and written on the outside of the paper.

Edison-724,246-2-

and should therefore be erased.

The state of the art is farther shown by the patent to
Gale, 17,855, July 2, 1857, (Steam Engines, Pistons).

*Richard A. Dyer
Samuel Edmunds
Frank L. Dyer*

*Law Offices
of
Dyer, Edmunds & Dyer,
Specialty: Patents, & Patent Causes.
31 Nassau Street,
New York.*

*Cable Address
"Dyer, Edmunds & Dyer"
Fl. No. 3910 Cor.*

THOMAS A. EDISON
SUBJECT-MATTER:
FILED
SERIAL NO.
EXAMINER'S ROOM NO.

*Combustion Engine
July 18, 1889
734 246
35*

Feb. 14/1902

HONORABLE COMMISSIONER OF PATENTS,

S I R :—

In the above entitled application, please address further communications to us at our office, No. 31 Nassau Street, New York City.

Very respectfully,

Dyer Edmunds & Dyer
Attorneys of Record.

THOMAS A. EDISON
COMBUSTION ENGINES
FILED JULY 18, 1899
SERIAL NO. 724,246
ROOM NO. 89

HONORABLE COMMISSIONER OF PATENTS,

S I R :—

The Official draftsman will please apply the reference numeral 41' at the bottom of figure 5 to the bracket on which the lever 41 is pivoted, charging the cost of the same to our account.

Very respectfully,

Attorneys for Edison.

New York, August 15, 1902.

Case No. 7 Paper No. 6

THOMAS A. EDISON
COMBUSTION ENGINES
FILED JULY 18, 1899
SERIAL NO. 724,246
ROOM NO. 89

HONORABLE COMMISSIONER OF PATENTS,

S I R :—

In a separate communication sent herewith, we have requested the Official draftsman to apply the reference numeral 41' at the bottom of figure 5 to the bracket on which the lever 41 is pivoted.

Page 3 line 15 erase "with" and substitute ---to---
Cancel claim 10.

We are not able to locate the "laudatory passage" to which the Examiner refers, as the matter contained between lines 16 and 28 on page 8 seems to be quite unobjectionable. If the Examiner will identify the matter in point, we will be glad to erase it if, as he says, it is unnecessary to a full presentation of the alleged invention.

Very respectfully,

THOMAS A. EDISON,

By _____

Attorneys.

New York, August 15, 1902.

Case No. 2 Paper No. 6

Room No. 219.
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

2-260.
M. _____ Rej. Paper No. 11.
All communications respecting this
application should give the serial number,
date of filing, and title of invention.

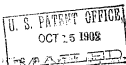
DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

Thos. A. Edison, WASHINGTON, D. C., Oct. 15, 1902.

C/o Dyer, Kimmonds & Dyer,

210 Nassau St.,

New York City.



Please find below a communication from the EXAMINER in charge of your application.

Combustion Engine, filed July 18, 1899, Serial #724,246.

D. J. Allen
Commissioner of Patents.

This case, as amended Aug. 16, 1902, has been considered.

Beginning line 19, page 1, and ending line 15, page 2, cancel all matter as being inconsistent with the state of the art as a statement of invention.

The corrections of the formal errors noted in the prior letters with which compliance has not been made, must be made before the case issues.

Claims 1, 2, and 3 are rejected on Von Querfurth, of record, in view of the common use of cut off slide valves.

Claims 4, 5, and 6 are rejected as aggregations for the reasons before stated and on Shaw, of record.

Claims 7, 8, and 9 are rejected on the references of record, particularly Shaw.

Claims 10 and 11 are still held to be improper combinations for the reasons previously given and are rejected on the references of record, particularly Waterhouse et al., in view of Eisenhuth.

M.H.C.

Case No. 2 Paper No. 7

2-276.

LETTER No. 141046

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C.

Mr. F. L. Dyer,
Orange,
N.J.
Aug 15th, 1903

SIR:

This office is in receipt of your order of Aug 12th for copies of
patents 92,630 et al

In reply you are advised that copies of all the patents ordered, that are
in print, have been mailed this day, except those enumerated below, the
supply of which is exhausted. As the appropriation is insufficient to reprint
all exhausted copies, special reasons must be given before the reproduction of
any patent will be ordered.

The balance of your remittance, \$....., will be returned by regis-
tered mail.

By direction of the Commissioner.

Respectfully,

C. M. Inghen
CM Chief Clerk.

The copies exhausted are:

473,829
538,168. *Amey*

UNITED STATES PATENT OFFICE.

Thomas A. Edison, :
Combustion Engines, : Room No. 218.
Filed July 18, 1899, :
Serial No. 724,246. :
:

Hon. COMMISSIONER OF PATENTS,

Sir:-

I amend the above entitled application as follows:

Page 1, line 10, beginning with "In" erase through the word "work", line 13, page 2. Claims 1, 2 and 3 (originally 19, 20 and 21), line 3 of each, after the word "air" insert "independent, and outside, of said heating chamber". Erase claims 10 and 11. Reconsideration of the claims as now presented is respectfully requested.

The patent to VanQuerfurth relates to an engine of a totally different type from that invented by applicant in as much as the air is heated by the combustion of oil, and the heated air is then intermixed with steam before entering the working cylinder. With this reference the heater comprises practically an oil burner, and this heater is located in a jacket or casing surrounding the cylinder. With applicant's invention the heater is an independent element, quite outside of the engine jacket, and communicates with the latter by a separate conduit which is made a positive element in the first three claims.

So far as claims 4 to 9 are concerned, it is respectfully submitted that they are not adequately met by the patent to Shaw, on which they are principally rejected. Shaw does not employ the jacket surrounding the working cylinder, he does not secure an expansive effect, and his

Case No. Paper No.

heater differs in details from that covered by the claims in question. These claims relate to applicant's specific apparatus, and cover no more than the special advance in the art which applicant has made. If the ^{Examiner} applicant is disposed to adhere to his former actions, it is hoped that the number of references cited may be curtailed as much as possible in order to facilitate the presentation of the case before the Examiner's in Chief. So little time is allowed at the arguments before that tribunal that it is a hardship to have to review a large number of references, some of which may be more pertinent than others. Of the references cited it is thought that the examiner can very properly limit them to two or three without receding in any way from his position.

Very respectfully,

Thomas A. Edison,

By

His Attorney.

Orange, N. J.,

August 25, 1903.

Case No. 3 Paper No. 9

2-200.

Room No. 382.
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

Paper No. 14.

All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,

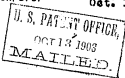
UNITED STATES PATENT OFFICE,

WASHINGTON, D. C.

Oct. 13, 1903.

T. A. Edison,

Care Frank L. Dyer,
Edison Laboratory,
Orange,
New Jersey,



Please find below a communication from the EXAMINER in charge of your application,

Combustion Engines; Filed July 13, 1899; No. 724,246.

F. J. Allen
Commissioner of Patents.

This case as amended Aug. 27, 1903, has been considered.

Attention is called to the formal errors, noted in the prior official letters.

The amendment of claims 1, 2, and 3 is not material and said claims are rejected on the references of record cited ^{there} against.

Claims 4, 5 and 6 are rejected on the references of record.

Claims 7, 8 and 9 are rejected on Shaw.

Applicant may consider this a final rejection if he so chooses.

The principal references are Shaw, Vonnerfurth, and Fall.

M.H.C.

No. 2298Serial No. 729,121

Applicant

Thomas C. Edison

Address

Llewellyn Park
Orange, N.J.Title Improvement in the Art of Producing Lubricated MaterialFiled Aug. 31-1899Examiner's Room No. 149

Assignee

Ass'g't Exec.

Recorded

Liber

Page

Patent No.

Issued

ACTIONS.

1. Rejected Apr. 30-1899 16
2. Reopened Aug. 27-1900 17
3. Rejected Sept. 18, 1900 18
4. Appealed Nov. 28, 1900 19
5. Exam. Am. Dec. 7, 1900 20
6. Hearing set for Dec. 19, 1900 at 3 PM 21
7. " changed to Jan. 9-1901 at 1 PM 22
8. Appeal argued by P. L. D. 23
9. Brief Jan. 9, 1901 24
10. Additional Brief Jan. 11, 1901 25
11. Decision Jan. 15, 1901 26
12. 27
13. 28
14. 29
15. 30

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RICHARD N. DYER,

31 Nassau Street,
NEW YORK CITY.

LAW OFFICES
OF
DYER, EDMONDS & DYER,
SPECIALTY,
Patents and Patent Causes,
31 NASSAU ST., NEW YORK.

RICHARD N. DYER,
REGISTRATION NO. 428.
SAMUEL O. EDMONDS,
REGISTRATION NO. 42.
FRANK L. DYER,
REGISTRATION NO. 442.

Petition.

To the Commissioner of Patents:

YOUR PETITIONER, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the County of Essex and State of New Jersey,

PRAYS THAT LETTERS PATENT MAY BE GRANTED TO HIM FOR THE IMPROVEMENT IN
THE ART OF BRICKING PULVERIZED MATERIALS

SET FORTH IN THE ANNEXED SPECIFICATION; AND HE HEREBY APPOINTS DYER, EDMONDS AND DYER (A FIRM COMPOSED OF RICHARD N. DYER, SAMUEL O. EDMONDS AND FRANK L. DYER), OF NO. 31 NASSAU STREET, NEW YORK CITY, HIS ATTORNEYS, WITH FULL POWER OF SUBSTITUTION AND REVOCATION, TO PROSECUTE THIS APPLICATION, TO MAKE ALTERATIONS AND AMENDMENTS THEREIN, TO RECEIVE THE PATENT, AND TO TRANSACT ALL BUSINESS IN THE PATENT OFFICE CONNECTED THEREWITH.

Thomas A. Edison

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the County of Essex and State of New Jersey, have invented a certain new and useful IMPROVEMENT IN THE ART OF BRICKING PULVERIZED MATERIALS (Case 1012), of which the following is a full, clear and exact description:

My invention relates to the art of bricking pulverized material, and particularly to the bricking of pulverized ore and coal, but the improvement may be carried out with any other finely divided substance which it is desired to form into compact, solid bricks or briquettes.

^x In my patent No. 465,251, dated December 15, 1891, I described a soluble rosin soap, such as resinate of soda, as a binding material for finely pulverized ore, and such a binder, owing to its high cohesiveness, is especially applicable for the purpose. The objection to the use of a rosin soap such as resinate of soda in this art, is its solubility and it therefore was necessary, when such a binder alone was used, to observe special care, in the storage and transportation of the bricked material, in excluding water therefrom.

My present improvement is designed to overcome this objection, and by its means I am enabled to use a soluble rosin soap as a binder in the bricking of the finely pulverized material, and to obtain resulting bricks, briquettes lumps or other aggregates which shall be entirely waterproof and therefore stable in the presence of moisture. ^x My invention resides in the discovery that when a heavy hydrocarbon or other non-water soluble and non-acid material of high boiling point is added to a very viscid solution of a

rosin soap such as resinate of soda, an emulsion is formed, which may be added to the pulverized material, and that when the mixture in the form of bricks, briquettes, lumps or other aggregates is baked to drive off the water, the soluble rosin soap in hardening will bind all the particles firmly together, while the non-water soluble and non-acid material in the binder will simultaneously form a thin film over practically all the particles of material so as to make the resulting product entirely waterproof. By thus employing a soluble rosin soap as a binder for pulverized material, wherein the mixture is purely mechanical and without any chemical action taking place between the binder and the material, I am enabled to carry on my present improvement in connection with any material in pulverized form, to use a relatively small proportion of binding substance, and to effect the baking at relatively low temperatures, whereby the danger of overheating in the cars or place of storage is overcome, while by making use of a heavy hydrocarbon or other non-water soluble and non-acid material of high boiling point in the binder, I secure a product which will be entirely unaffected by water, and which can therefore be transported in open cars or stored in exposed piles.

In carrying out my present improvement for the bricking of iron ore, for example, I prefer to proceed substantially as follows: A rosin soap, preferably resinate of soda, is first secured, which may be of the proportions described in my said patent, to wit, of 1 part of soda and of about 12 parts of common rosin. This rosin soap is dissolved in water in a sufficient amount to impart a thick, molasseslike consistency. To the solution so obtained is added preferably a thick hydrocarbon, such as the residuum obtained from the distillation and manipulation of crude petroleum, and having a very high boiling point so as not to

be volatilized during the process of baking. The proportion of the residuum so added depends largely upon the character of the binder desired and upon its own characteristics, but ordinarily good results will be secured by the addition of about 20% by weight of the rosin soap employed. The residuum is thoroughly mixed with the rosin soap solution to form an emulsion, which, owing to the heavy consistency of the hydrocarbon residuum, will be sufficiently permanent for the subsequent operations. A sufficient quantity of the emulsified binding substance so secured is intimately mixed with the ore in a suitable mixing machine, with or without the presence of slight heat, and the mixture is then formed under great pressure into bricks or briquettes in a suitable bricking apparatus. The bricks or briquettes so produced are then baked in an oven at a temperature of preferably between 400 and 600 degrees Fahrenheit until the proper result is secured. The first action of the heat in the baking oven is to drive off the free water, during which operation the resinate of soda or other rosin soap will become very hard and will bind the particles of the ore together. After the water has been driven off and the rosin soap solidified, the residuum or other hydrocarbon employed will, under the presence of the heat, spread over each particle to form a waterproofing film thereon, and in this way the resulting product will be entirely unaffected by the presence of moisture. It is therefore necessary that the baking of the bricks or briquettes should proceed to the point where the free water will be entirely expelled, and where the hydrocarbon or other non-water soluble material employed has had an opportunity to flow over the particles as explained. If the baking is discontinued before the water is driven off, the hydrocarbon or other non-water soluble material will not flow over the particles, and the

resulting waterproofing thereof will not be secured; while if such material were not used, the resulting product would be entirely unstable in the presence of considerable moisture. When lighter pulverized materials than iron ore are to be bricked, the quantity of the resinate or other rosin soap requires to be augmented, owing to the increase in the bulk of the material.

Instead of making an emulsion, as explained, by adding the non-water soluble material to the viscid solution of rosin soap, it will be understood that the rosin soap solution may be first mixed with the pulverized material, and that the proper proportion of such material may be afterwards added to the mixture so secured and intimately associated therewith, after which the composition will be formed into bricks or briquettes and then baked; but I find that the results which are secured when this procedure is followed, are not as satisfactory as when an emulsion is first formed, and I prefer to carry out the invention in the manner which I have described in detail. Non-water soluble residuums not of an acid nature and therefore not combining with bases, like soda, and which are suitable for this process, are produced from the distillation of fatty acids and other industrial operations, but petroleum residuum is preferable on account of cheapness and its neutral character in relation to alkalies.

While it is also preferable that the composition of the pulverized material and the improved binder should be first formed into bricks and then baked, it will be understood that the composition can be baked in mass, as I have described in my said patent, and afterwards broken up into lumps or aggregates in any suitable way.

Having now described my invention, what I claim as new therein and desire to secure by Letters Patent is as follows:

AUG 27 1900

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1. In the art of ^{described} forming pulverized material into ~~bricks, briquettes, lumps or other aggregates~~, the improvement which consists in adding to the pulverized material a binding substance composed of ^{an aqueous solution of} a soluble rosin soap and a non-water soluble non-acid material having a high boiling point, and in subjecting the mixture so produced to heat, substantially as set forth.

2. In the art of ^{described} forming pulverized material into ~~bricks, briquettes, lumps or other aggregates~~, the improvement which consists in adding to the pulverized material a binding substance composed of ^{an aqueous solution of} resinate of soda and a non-water soluble non-acid material having a high boiling point, and in subjecting the mixture so produced to heat, substantially as set forth.

3. In the art of ^{described} forming pulverized material into ~~bricks, briquettes, lumps or other aggregates~~, the improvement which consists in adding to the pulverized material a binding substance composed of ^{an aqueous solution of} a soluble rosin soap and the residuum obtained from the distillation of petroleum, and in subjecting the mixture so produced to heat, substantially as set forth.

4. In the art of ^{described} forming pulverized material into ~~bricks, briquettes, lumps or other aggregates~~, the improvement which consists in adding to the pulverized material a binding substance composed of ^{an aqueous solution of} resinate of soda and the residuum obtained from the distillation of petroleum, and in subjecting the mixture so produced to heat, substantially as set forth.

5. In the art of ^{described} forming pulverized material into ~~bricks, briquettes, lumps or other aggregates~~, the improve-

AUG 27 1900

ment which consists in forming an emulsion by adding to a ^{aqueous} viscous solution of a rosin soap a non-water soluble non-acid material having a high boiling point, in adding such emulsion to the pulverized material, and in subjecting the composition so obtained to heat, substantially as set forth.

6. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in forming an emulsion by adding to a viscous solution of resinate of soda a non-water soluble non-acid material having a high boiling point, in adding such emulsion to the pulverized material, and in subjecting the composition so obtained to heat, substantially as set forth.

7. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in forming an emulsion by adding to a viscous solution of a rosin soap the residuum obtained from the distillation of petroleum, in adding such emulsion to the pulverized material, and in subjecting the composition so obtained to heat, substantially as set forth.

8. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in forming an emulsion by adding to a viscous solution of resinate of soda the residuum obtained by the distillation of petroleum, in adding such emulsion to the pulverized material, and in subjecting the composition so obtained to heat, substantially as set forth.

9. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in adding to the pulverized material a binder composed of a soluble rosin soap and a non-water soluble non-acid material having a high boiling point, in forming the composition into bricks or briquettes, and in baking said bricks or briquettes, substantially as set forth.

AUG 27 1900
10. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in adding to the pulverized material a binder composed of resinate of soda and a non-water soluble non-acid material having a high boiling point, in forming the composition into bricks or briquettes, and in baking said bricks or briquettes, substantially as set forth.

AUG 27 1900
11. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in adding to the pulverized material a binder composed of a soluble rosin soap and the residuum obtained from the distillation of petroleum, in forming the composition into bricks or briquettes, and in baking said bricks or briquettes, substantially as set forth.

AUG 27 1900
12. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in adding to the pulverized material a binder composed of resinate of soda and the residuum obtained from the distillation of petroleum, in forming the composition into bricks or briquettes, and in baking said bricks or briquettes, substantially as set forth.

AUG 27 1900
13. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in first making an emulsion by adding to a viscid solution of a soluble rosin soap a non-water soluble non-acid material having a high boiling point, in adding said emulsion to the pulverized material, in forming the pulverized material into bricks or briquettes, and in baking said bricks or briquettes, substantially as set forth.

AUG 27 1900
14. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in forming an emulsion by adding a vis-

cid solution of resinate of soda and a non-water soluble non-acid material having a high boiling point, in adding said emulsion to the pulverized material, in forming the pulverized material into bricks or briquettes, and in baking said bricks or briquettes, substantially as set forth.

15. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in forming an emulsion by adding a viscid solution of a soluble rosin soap to the residuum obtained from the distillation of petroleum, in adding such emulsion to the pulverized material, in forming the pulverized material into bricks or briquettes, and in baking said bricks or briquettes, substantially as set forth.

16. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in forming an emulsion by adding to a viscid solution of resinate of soda the residuum obtained from the distillation of petroleum, in adding such emulsion to the pulverized material, in forming the pulverized material into bricks or briquettes, and in baking said bricks or briquettes, substantially as set forth.

THIS SPECIFICATION SIGNED AND WITNESSED THIS 22nd DAY OF August 1899

Thomas A. Edison

Witnesses:

1. J. H. Randolph
2. J. L. Burn

Oath.

State of New Jersey } ss.:
County of Essex

THOMAS A. EDISON, THE ABOVE-NAMED

PETITIONER, BEING DULY SWORN, DEPOSES AND SAYS THAT HE IS A citizen
OF THE United States, and a resident of Llewellyn Park, in the
County of Essex and State of New Jersey;
THAT HE VERILY BELIEVES HIMSELF TO BE THE ORIGINAL, FIRST AND SOLE INVENTOR
OF THE IMPROVEMENT IN THE ART OF BRICKING PULVERIZED MATERIALS

DESCRIBED AND CLAIMED IN THE ANNEXED SPECIFICATION; THAT HE DOES NOT
KNOW AND DOES NOT BELIEVE THAT THE SAME WAS EVER KNOWN OR USED BEFORE
HIS INVENTION OR DISCOVERY THEREOF; OR PATENTED OR DESCRIBED IN ANY
PRINTED PUBLICATION IN THE UNITED STATES OF AMERICA OR ANY FOREIGN COUNTRY
BEFORE HIS INVENTION OR DISCOVERY THEREOF, OR MORE THAN TWO YEARS PRIOR
TO THIS APPLICATION; OR IN PUBLIC USE OR ON SALE IN THE UNITED STATES FOR
MORE THAN TWO YEARS PRIOR TO THIS APPLICATION, AND THAT NO APPLICATION
FOR FOREIGN PATENT HAS BEEN FILED BY HIM OR HIS LEGAL REPRESENTATIVES OR
ASSIGNS IN ANY FOREIGN COUNTRY.

Thomas A. Edison

SWORN TO AND SUBSCRIBED BEFORE ME THIS 22nd DAY OF August 1899

(SEAL)

J. H. Randolph
NOTARY PUBLIC.

for New Jersey

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

2-0445.

DEPARTMENT OF THE INTERIOR,

United States Patent Office,

Washington, D. C., Aug. 31, 1877.

Dy. Edmunds Dy.

Sir:

The oath accompanying the application of

Mr. A. Edison

was administered by

an official

who has failed to attach thereto, or place on file in this office, a certificate of his official character, as required by Rule 47, which reads as follows:

* * * "An oath taken before a notary public or magistrate will not be accepted unless a certificate of the official character of the person administering the oath, stating the date of appointment and term of office, is filed. To obviate the necessity of a separate certificate in each application, a certificate may be furnished with the request that it be filed in the Patent Office for general reference."

EACH CERTIFICATE MUST HAVE A TEN-CENT REVENUE STAMP AFFIXED THERETO AND CANCELED BY THE USER.

In order not to delay the examination of this application, the same has been forwarded to the examiner, who has, however, been instructed not to pass the case to issue until the provisions of said rule have been observed.

By direction of the Commissioner:

Very respectfully,

E. V. Shepard.

Chief Clerk.

NOTE.—If the oath is administered by a notary public in a country foreign to the United States, the certificate of his official character must also state that he is authorized by the laws of his country to administer an oath.

2-020.

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

{ Series of 1880

No. 729121

DEPARTMENT OF THE INTERIOR,

United States Patent Office,

Washington, D. C.,

Aug. 31, 1889



SIR:

I have to acknowledge the receipt of the petition, specification, oath, and drawing of your alleged improvement in Art of Bricking
Pulverized Materials

with Fifteen Dollars as the first fee payable thereon.

The papers are duly filed, and your application for a patent will be taken up for examination in its order

You will be duly advised of the examination.

Very respectfully,

Case will be taken up for examination in about one month.

C. H. Druell
Commissioner of Patents.

Thos. A. Edison
% B. G. Edwards & Co.
31 Nassau St.
N.Y. City.

Any communication respecting this application should give the serial number, date of filing, and title of invention.

NOTE.—In order to constitute an application for a patent, the inventor is by law required to furnish his petition, specification, oath, and drawings (where the nature of the case admits of drawings) and to pay the required fee.
No application is considered as complete, nor can any official action be had thereon, until all its parts, as here specified, are furnished in due form by the inventor or applicant.

1889 If payment is by check or draft, the credit granted is subject to the collection of the same.

2-671.

Room No. 148.
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

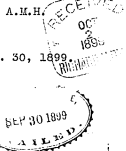
WASHINGTON, D. C., Sept. 30, 1899.

Thomas A. Edison,

Care Dyer, Edmon's & Dyer,

31 Nassau St.,

New York, N. Y.



Please find below a communication from the EXAMINER in charge of your application.

No. 729,121, filed Aug. 31, 1899,—"Art of Bricking Pulverized Materials".

C. H. Duell
Commissioner of Patents.

In claims 1, 2, 3, 4, 5, 6, 7, 8 the forming of the mass into bricks, briquettes, lumps, or other aggregates should be expressed step in the process or the introductory clause thereof amended to correspond.

In claims 9, 10, 11, 12, 13, 14, 15, 16, the introductory clause which includes lumps or aggregates is inconsistent with the recital of the step of forming the material into bricks, or briquettes.

In claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 the residue of soda or soluble soap should be specified as being in a state of aqueous solution.

Claims 1, 2, 5, 6, 9, 10, 13 and 14 are the same in substance, and claims 3, 4, 7, 8, 11, 12, 15, and 16 are also the same in substance, there being substantially but two claims which could be properly prosecuted.

The claims are each rejected on:-
U. S. 125,656, Apr. 16, 1872, Breinig, (Artificial Fuel, Comp.);
and see also:-

U. S. 594,739, Nov. 30, 1897, Hanson, (Artificial Fuel, Comp.).

Ex'r Div. 3.

THOMAS A. EDISON,
ART OF BRICKING PULVERIZED MATERIAL,
FILED, AUGUST 31, 1899,
SERIAL NO. 729,121.

}
}
: Room No. 149.
}
}

HON. COMMISSIONER OF PATENTS,

Sir:

In view of the Examiner's criticism as to the number of the claims, and with the idea in view of presenting the invention in as clear-cut a form as possible, we intend by erasing claims 6 to 16 inclusive, said claims being specific to the five claims which now remain in the case. Present claims 1, 2, 3, 4, and 5, line 1 of each, before "art" insert --described--.

In each of said claims, lines 1 and 2, erase the words "of forming pulverized material into bricks, briquettes, lumps, or other aggregates".

Claims 1 and 3, line 4 of each, after "of", and claims 2 and 4, line 4 of each, before "resinate" insert --an aqueous solution of--.

Claim 5, line 4, before "solution" insert --aqueous--.

Reconsideration of the claims as now presented is respectfully requested.

As applicant points out in the specification with the processes described in his patent No. 455,261, objection was encountered in practice owing to the non-stable character of the aggregates in the presence of considerable moisture. In said patent applicant was granted claims broadly to the method of mixing ores with any resinate, such, for instance, as resinate of soda, so that the claims of the present case are dominated by said

patent, and the present application, if issued, would not broaden applicant's monopoly already secured. In order to remedy the defect in the patented process, applicant describes an addition thereto consisting in adding a relatively small proportion of a non-water-soluble residuum having a high boiling point. The presence of this added ingredient does not affect the highly tenacious character of the resinate, while it enables a minutely thin water-proof film to cover the particles of the material. Obviously, the non-water-soluble residuum must have a high boiling point, since it is required to withstand the relatively high temperature of the baking without volatilization. We do not perceive the pertinence of either of the references cited, particularly when the present application is viewed in the light of an improvement on a process already broadly patented to applicant. Hanson's patent describes the baking of fuel blocks of highly combustible hydrocarbons, principally refined petroleum (from 75 to 85 percent), thick turpentine (13 to 6 percent), and pine resin (5 to 2 percent), such hydrocarbons being mixed with a soap formed by saponifying margarin and cocoanut oil with caustic soda. We do not see how this can be said to relate to applicant's art, but if it were admitted that the particular fuel block composition of Hanson were used as a binder for pulverized material, it will be seen that applicant's result would not be secured, since the petroleum forming the larger bulk of the binder is highly volatile. In the Breinig patent, the inventor seeks to make a combustible binder for the manufacture of fuel bricks, by saponifying resin and asphaltum with a suitable caustic alkali. The inventor states: "By preference I may use the resin or asphalt-

use either the one or the other alone, but stating that to effect the saponification of the asphaltum alone a large proportion of alkali is required." We think there can be no doubt but that it was Breinig's idea to use only a resin soap as a binder, and not to use a non-water-soluble, high boiling point ingredient for forming a water-proof coating to the particles, as with applicant's invention.

Reconsideration of the claims is, therefore, respectfully requested.

Very respectfully,

THOMAS A. WILSON,

By

His Attorneys.

31 Nassau St., New York,

August 27, 1900.

2-246.

Room No. 1424
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,

A. M. H.

UNITED STATES PATENT OFFICE,

WASHINGTON, D. C.,

Sept. 18, 1900.

Thomas A. Edison,

Care Dyer, Edmonds & Dyer,

31 Nassau St.,

New York, N. Y.



Please find below a communication from the EXAMINER in charge of your application.

No. 729,121, filed Aug. 31, 1899,—"Art of Bricking Pulverized Materials".

C. H. Duell
Commissioner of Patents.

Amendment and argument filed Aug. 28, 1900, have been entered and considered.

Soluble rosin soap is always a resinate of sodium or potassium, hence the difference in the terms in claims 1, 2 and 5 and claims 3 and 4 is immaterial. Also, to entitle the resinate as "viscid" in claim 5 is immaterial.

The claims are again rejected on the patent to Bräinig, of record. The composition constituting the binder does not contain sufficient caustic alkali to effect the ^{complete} saponification of the other ingredients.

Ex'r Div. 3.

* RULE 72. In every amendment the exact word or words to be stricken out or inserted in the application must be specified and the precise points indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper.

In every application for a patent filed subsequent to December 31, 1897, responsive action must be made by the inventor within one year after the last office action or the case will become abandoned.

THOMAS A. EDISON

ART OF BRICKING PULVERIZED MATERIALS

FILED AUGUST 31, 1899

SERIAL NO. 729,121

ROOM NO. 149.

HON. COMMISSIONER OF PATENTS,

S I R :

In the above-entitled application we hereby appeal to the Examiners-in-Chief from the decision of the Primary Examiner, who on September 16, 1900, rejected for the second time and finally all the claims in the case, and we assign the following reasons of appeal:

1. The Examiner erred in deciding that the processes defined in said claims are not patentable inventions in view of the state of the art;
2. The Examiner erred in rejecting said claims on the reference of record; and
3. The Examiner erred in not allowing said claims.

An oral hearing is requested.

The appeal fee of \$10. is forwarded herewith.

Very respectfully,

THOMAS A. EDISON,

By _____

His Attorneys.

New York, November 28, 1900.

Room No. _____
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

2-044.

DEPARTMENT OF THE INTERIOR,



U. S. Patent Office,

Washington, D. C. *Nov 30 1901* - 180

SIR:

I have to acknowledge the receipt of the APPEAL ^{to} in the _____

Eps in Chix

in your application for Improvement in _____

*Art of Bricking Pulverized
Materials*

with *10* _____ as

the fee payable thereon.

Of the result due advice will be given.

Very respectfully,

C. H. Duell

Commissioner of Patents.

Thomas A. Edison

of Dyer, Edmonds & Dyer

31 Nassau Street

New York N. Y.

25-11 payment is by check or draft the credit granted is subject to the collection of the same.

UNITED STATES PATENT OFFICE.



In re Application of Thomas A. Edison : Before the
Filed Aug. 31, 1899, Ser. No. 729,121, : Examiners-in-Chief,
"Art of Bricking Pulverized Materials". : On Appeal.
----- Div. 3, Dec. 7, 1900.

Examiner's Statement.

The claims finally rejected are:

"1. In the described art the improvement which consists in adding to the pulverized material a binding substance composed of an aqueous solution of a soluble rosin soap and a non-water soluble non-acid material having a high boiling point, and in subjecting the mixture so produced to heat, substantially as set forth.

"2. In the described art, the improvement which consists in adding to the pulverized material a binding substance composed of an aqueous solution of resinate of soda and a non-water soluble non-acid material having a high boiling point, and in subjecting the mixture so produced to heat, substantially as set forth.

"3. In the described art, the improvement which consists in adding to the pulverized material a binding substance composed of an aqueous solution of a soluble rosin soap and the residuum obtained from the distillation of petroleum, and in subjecting the mixture so produced to heat, substantially as set forth.

"4. In the described art, the improvement which consists in adding to the pulverized material a binding substance composed of an aqueous solution of resinate of soda and the residuum obtained from the distillation of petroleum, and in subjecting the mixture so produced to heat, substantially as set forth.

"5. In the described art, the improvement which consists in forming an emulsion by adding to a viscid aqueous solution of a rosin soap a non-water soluble non-acid material having a high boiling point, in adding such emulsion to the pulverized material, and in subjecting the composition so obtained to heat, substantially as set forth."

The reference cited is:

U. S. 128,656, Apr. 16, 1872, Breinig, (Artificial Fuel Compositions).

The claims in this case relate to a process of making ore brick, but the claims are not limited to the use of pulverulent ore, and cover process of forming bodies consisting in mixing pulverulent material of any kind with rosin soap in solution as a binder and an additional binder which is water-proof, and non-acid such

as a distillate, and particularly petroleum residuum. The reference relates to the manufacture of fuel bricks in which the pulverulent material is bound together by rosin soap and a water-proof material, such as asphaltum or petroleum residuum, etc. In the detail description, see lines 12-37, second column, page 1 of the printed specification, the proportions in which the ingredients are used are three pounds of rosin, one and one-half pounds of water-proof material and one-half pound of caustic alkali. The applicant has urged against this reference that the water-proof material was saponified as well as the rosin, but the applicant was informed the quantity of alkali specified in the patent is incapable of so acting. It is at least doubtful if petroleum residuum is capable of saponification; see:

Druggist Circular, 1885, p. 73, subject "Coal Oil in Soap".

But if it were, in view of the fact that the saponific value of rosin is found to be 174.7 to 194.3; see

Chemical Analysis, Oils, Fats and Waxes, Benedikt, Lewkowitsch, McMillan & Co., London and New York, 1895, p. 167, the one-half pound of caustic alkali is not quite sufficient to saponify all of the three pounds of rosin.

It is submitted that the processes as set forth in the claims are fully anticipated in the patent cited, and that the claims were properly rejected.

The claims have been objected to by the Examiner on account of their needless number, but the Examiner has not refused to entertain the appeal because of the formal objections, since if anything should be found to be patentable in the case, the claim which most clearly expresses it may be selected and allowed.

Respectfully submitted,

Ex'r Div. 3.

(2-051.)

Room No. 248.
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

DEPARTMENT OF THE INTERIOR,



United States Patent Office,

Washington, D. C.



Thos. A. Edison

2d Type, Edisons & Type,

31 Nassau St.

New York, N. Y.

SIR:

The appeal from the decision of the Examiner in the case of
Thos. A. Edison for a patent for an improvement in
Art of Breaking Pulverized Materials
filed Aug. 31, 1899, Serial No. 229,121, will be heard by the
Examiners-in-Chief, at 2³⁰ PM on Wednesday Dec. 19, 1900.

If appellant, or his attorney, shall not appear at that time the hearing will
be regarded as waived, and the case will be decided upon the record.

Very respectfully,

C. H. Dwell
Commissioner of Patents.

(2-051.)

Room No. 242.
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

DEPARTMENT OF THE INTERIOR,



United States Patent Office

Washington, D. C.



Thos. A. Edison

% Typ. Edwards & Tyer attys.

31 Nassau Street

New York, N. Y.

SIR:

The appeal from the decision of the Examiner in the case of
Thos. A. Edison for a patent for an improvement in
Art. of Bricking Pulverized Materials
filed August 31, 1899, Serial No. 129,121, will be heard by the
Examiners-in-Chief, at 1 P.M. on Wednesday January 9 1901.

If appellant, or his attorney, shall not appear at that time the hearing will
be regarded as waived, and the case will be decided upon the record.

Very respectfully,

C. H. Dwell
Commissioner of Patents.

THOMAS A. EDISON

ART OF BRICKING PULVERIZED MATERIALS

FILED AUGUST 31, 1899

SERIAL NO. 739,121

BEFORE THE
EXAMINERS IN CHIEF
ON APPEAL.

BRIEF.

The present application relates to improvements in the bricking of finely pulverized materials, such as iron ore.

Mr. Edison, early in his work in this field, discovered that certain resin soaps possessed great adhesiveness and binding qualities, and he therefore obtained a patent, No. 465,251 dated December 15th 1891, covering broadly a resinate and specifically resinate of soda as a binder for pulverized ores. A soap made by saponifying a resin such as rosin is obviously water soluble, and great difficulty was experienced for this reason in protecting the original briquettes from dampness. They required to be always protected from the weather, to be transported in closed cars, and in every way to be carefully handled.

The objections indicated were of such a serious nature that Mr. Edison applied himself to the production of other binders which would not be soluble. He found that by dissolving rosin in petroleum, by adding the solution to the pulverized ore, and by heating the same to relatively high temperatures to drive off the petroleum, resinate of iron was formed, which bound the particles intimately together and which was non-water-soluble. The briquettes thus formed were entirely waterproof. In order, however, to volatilize the petroleum and to form the iron resinate, the baking temperatures were necessarily high,

involving increased cost of production. Furthermore, it was found that the briquettes could not be immediately loaded upon the cars without danger of fire, so that special appliances were necessary for cooling them before loading. The iron resinate binder is covered in Edison patent number 509,428 dated November 28th 1893.

Mr. Edison then applied himself to the discovery of a binder which would possess the waterproof qualities of iron resinate and would necessitate only the use of the relatively low baking temperatures of the alkaline resinate of his first patent. What he does at the present time, and what is made the subject of the present application, is first the formation of an aqueous solution of a suitable resin soap such as resinate of soda, and the addition thereto of a thick, waterproof, non-acid material having a high boiling point, such as petroleum residuum, the latter forming an emulsion with the solution. This emulsion is then added to the pulverized material, and the latter formed into bricks or briquettes of the proper shape, which are then subjected to a temperature sufficient to drive off the water but not to volatilize the hydrocarbon. It has been found that as soon as all the water in the binder is driven off, the alkaline resinate acts to intimately bind all the particles of the material together, while the heat causes the hydrocarbon to spread evenly throughout the mass, coating each particle with a waterproofing film. Thus the briquettes are impervious to water, while the high temperatures necessary with the iron resinate process are entirely avoided.

The claims which are appealed cover, both generically and specifically, the improvement in the art consisting in the addition to the material of a binder comprising

an aqueous solution of a rosin soap such as resinate of soda and a non-water-soluble non-acid material having a high boiling point, such as the residuum obtained from the distillation of petroleum, and in finally subjecting the mixture to heat.

All of the claims are rejected by the Examiner on U.S. patent to Breinig No. 125,656. We submit that the Examiner's explanation of the reference is not only incorrect, but in our opinion unfair. In the first place, the Examiner improperly quotes the reference in order to support his argument; in the next place, the Examiner refers to the reference as disclosing a feature which is not referred to therein; and finally, the Examiner, admitting that the reference on its face is not pertinent, disregards its plain language, denies its statements, and refers in support of his own position to two references which are not of record and which have never before been cited.

In considering the reference, the Examiner states that it —

"relates to the manufacture of fuel bricks in which the pulverulent material is bound together by rosin soap and a waterproof material such as asphaltum or petroleum residuum etc."

An examination of the Breinig patent fails to disclose anywhere a reference to rosin as the material from which the soap is to be made. Breinig refers generally to the manufacture of a soap by the use of any —

"alkali with a caustic base of such nature that it will saponify in hot or cold contact or boiling with fats, oils or resins",

and throughout the description no particular resin is referred to. If the Examiner in his statement means that Breinig refers to rosin or colophony (the particular resin referred to by Mr. Edison), then the statement is without foundation. So also is the Examiner's statement that

Breinig refers to "a waterproof material". Such is not the fact. It is true that Breinig refers to the use of "asphaltum", either natural or artificial, but it will be seen that it was Breinig's idea to saponify the asphaltum so as to form a soluble soap. Thus he says, at the top of the second column page 1, that his process "consists in saponifying the resin or asphaltum or both", and in describing the process, in the same column, he states:

"I slowly add the resin and asphaltum, having previously powdered the same or not as I may deem best, and continue the heat upon the solution until the said resin and asphaltum shall be resolved and saponification effected."

Thus it would be as correct for one to state that ordinary toilet soap is waterproof because one of its original ingredients considered alone is of a water-repellent character, as it is for the Examiner to state that with the Breinig reference a waterproof material is utilized in connection with the binder. When the Breinig reference was cited, we called attention to the fact that it appeared entirely clear from the description that either a resin or asphaltum or both could be used, but that in every instance the material was saponified. In his answer the Examiner doubts "if petroleum residuum is capable of saponification", but he argues that even if this were so, "the one-half pound of caustic alkali" referred to in the specification "is not quite sufficient to saponify all of the three pounds of rosin". It seems to us that this language of the Examiner is again more in the nature of the argument of an advocate than that of a statement calculated for the instruction and guidance of the Examiners in Chief. If it be a fact that petroleum residuum is incapable of saponification, it does not follow therefrom that artificial or natural asphaltum is incapable of saponification. If, how-

ever, Breinig was in error in referring, as saponifiable materials, to resins and to asphaltum either alone or together as examples of such materials, when as a matter of fact the resin alone is capable of being saponified, then a person carrying out his suggestion would of course utilize the saponifiable material and not the other. In other words, if a patent, in addition to describing an operative structure, refers also to an inoperative structure, then in the consideration of the patent and in the interpretation of its claims, its readers apply themselves only to its operative parts. What the Examiner does in the present case, however, is to deny the statements made by the patentee, while at the same time he adheres to the entire specification and holds that the asphaltum is not saponified, but that it remains unaffected and forms a waterproofing ingredient. What he should have done, if he considered asphaltum to be incapable of saponification, would have been to disregard the suggestion of Breinig for the use of asphaltum and to regard the patent only as covering the use of a resin. Having thus refused to accept the patentee's statements as correct, and having construed the Breinig patent as covering an entirely different invention from what he describes, the Examiner continues, that even if it be conceded that petroleum residuum is capable of saponification, "the one-half pound of caustic alkali is not quite sufficient to saponify all of the three pounds of rosin", and the inference is to be drawn that the asphaltum used is entirely unsaponified. In the first place, we call attention again to the fact that the Examiner misquotes the reference when he states that rosin is used. The patent in giving a specific instance of desirable proportions states that three pounds of "resin", and not rosin,

is employed. It may be true that one-half pound of caustic alkali is not sufficient to saponify three pounds of rosin, but there may be many forms of resins which could be fully saponified by a much smaller quantity of alkali. The Examiner also failed to note the statement in the patent "that to effect the saponification of the asphaltum alone, a large proportion of alkali is required", from which it must appear that the alkali is always used in sufficient proportions to completely saponify not only all of the resin, but all of the asphaltum. This is further emphasized by the subsequent references in the patent to the fact that the binder used is in the form of a "liquid soap", which is mixed with the material. It seems to us, therefore, entirely clear that with the Breinig patent the patentee's idea was to use either a resin or asphaltum alone or combined, and to completely saponify the same to form a liquid soap as a binder, and that in no instance did Breinig suggest the incomplete saponification of the asphaltum so as to leave the same as an uncombined water-proofing ingredient, as suggested by applicant.

We believe therefore that for these reasons the present invention stands on a foundation of entire novelty, that in fact the Breinig patent is not so closely allied to that invention as applicant's prior patent, which it is the object of the present invention to directly improve, and that therefore all of the claims should be allowed.

Respectfully submitted.

Attorneys for Edison.

New York, January 7, 1901.

T. A. EDISON

ART OF BRICKING PULVERIZED MATERIAL

FILED AUGUST 31, 1899

SERIAL NO. 729,121

ADDITIONAL BRIEF.

Since the argument of the appeal, we have again submitted the Breinig reference to our client, who calls our attention to a point which we omitted to make on the argument. With the Edison invention it is necessary that the heat should not only drive off the water of the solution, but also that it should melt the hydrocarbon and cause the latter to flow so as to spread over all the ore particles to coat each with a waterproofing film.

Thus the specification states that the heat to which the briquettes are subjected may be so high as 600° F. On the other hand, with the Breinig invention, the mass whether molded or not is simply dried "by artificial or natural heat". Assuming, therefore, that in the Breinig composition the asphaltum or other heavy residuum is not saponified, it would not be affected in the slightest degree by a mere drying heat, and would be as inert and -- so far as its waterproofing qualities are concerned -- as valueless as the "pulverized quartz or fine sand" which also are used by Breinig. What is necessary is that the composition should be subjected to a baking heat in an oven whereby the desired operations will take place, the water being first evaporated, and the residuum then melting and running throughout the mass to coat the individual particles.

We suggest, therefore, that each claim be amended by inserting after "heat" the following -----sufficiently

high to evaporate the water and to melt the non-water-soluble material to permit the flowing of the latter throughout the mass-----.

We hope the Examiners-in-Chief may recommend this amendment if in their opinion the case presents invention.

It seems to us that the patent ought to be granted for the reason that if the Breinig patent is to operate as a bar it must be found (1) that resin is the particular resin to which Breinig refers, (2) that a liquid and hence soluble soap is not formed as Breinig describes, and (3) that the heat used by him is very much greater than that necessary to perform a drying operation. We do not believe that the reference can be so construed.

Very respectfully,

Attorneys for Edison.

New York, January 11, 1901.

No. 23,235

U. S. Patent Office, Jan. 15, 1901.

Before the Examiners-in-Chief, on Appeal.

Application of Thomas A. Edison for a patent for an improvement in the Art of Bricking Pulverized Materials, filed August 31, 1899. Serial No. 729,121.

Messrs. Dyer, Edmonds & Dyer for appellant.

The claims appealed are:

"1. In the described art the improvement which consists in adding to the pulverized material a binding substance composed of an aqueous solution of a soluble rosin soap and a non-water soluble non-acid material having a high boiling point, and in subjecting the mixture so produced to heat, substantially as set forth.

"2. In the described art, the improvement which consists in adding to the pulverized material a binding substance composed of an aqueous solution of resinate of soda and a non-water soluble non-acid material having a high boiling point, and in subjecting the mixture so produced to heat, substantially as set forth.

"3. In the described art, the improvement which consists in adding to the pulverized material a binding substance composed of an aqueous solution of a soluble rosin soap and the residuum obtained from the distillation of petroleum, and in subjecting the mixture so produced to heat, substantially as set forth.

"4. In the described art, the improvement which consists in adding to the pulverized material a binding substance composed of an aqueous solution of resinate of soda and the residuum obtained from the distillation of petroleum, and in subjecting the mixture so produced to heat, substantially as set forth.

"5. In the described art, the improvement which consists in forming an emulsion by adding to a viscous aqueous solution of a rosin soap a non-water soluble non-acid material having a high boiling point, in adding such emulsion to the pulverized material, and in subjecting the composition so obtained to heat, substantially as set forth."

The reference is patent to

Beinig, April 16, 1872, No. 125,656.

The specification of this application generally states the nature of its invention as follows:

"My invention relates to the art of bricking pulverized material, and particularly to the bricking of pulverized ore and coal, but the improvement may be carried out with any other finely divided substance which it is desired to form into compact, solid bricks or briquettes."



And it also states:

"When lighter pulverized materials than iron ore are to be bricked, the quantity of the resinate or other rosin soap requires to be augmented, owing to the increase in the bulk of the material"

So the invention applies to pulverized materials generally, and especially to coal and ore.

Breinig's patent discloses an invention for bricking coal

The invention is a heating material. The ingredients are as follows:

Breinig.			Edison.		
Soda,	1,	10%	1	-----	16.4%
Rosin,	6,	60%	12	----	76.9%
Residuum of Petroleum	3,	30%	0.26	-----	16.6%

Breinig's printed specification has "resin" as its resinous ingredient. In such a coarse mixture we should interpret this to be the cheap and common resin known as rosin. But we are not compelled to so interpret it, as the original specification in the file of the application for his patent, which went to patent without any amendment, used the word rosin in the formula and in every place in the specification excepting once, being on the 17th line from the bottom of column 2 of page 1 of the printed specification.

So the ingredients of the two compositions are the same and the proportions substantially the same, and neither the patentee nor the applicant limits the invention to any particular proportion, nor does the applicant intimate that there is any especial utility in any particular proportion.

The contention on behalf of the applicant is that the patentee's invention is a composition in which the asphaltum is saponified, that anyone attempting to practice that invention would necessarily make a composition in which the asphaltum is saponified; that in his composition the asphaltum is not saponified and

that no one could get from the specification of the patent any idea of a binder in which the asphaltum is not saponified; and that for these reasons the patent does not disclose his binding material.

We cannot concur in such an interpretation of the invention of the patent.

The specification of the patent discloses a specific composition made of specific ingredients in a specified manner. A formula directs the public as to the ingredients and proportions to be used and the specification states the manner of compounding them and submitting them to molding and to a drying, in natural or artificial heat.

That composition so made and used as a binder for coal-brick, is the invention of the patent. That composition is what the public now have a right to use, the patent having expired. It is not the theory of action which controls in the interpretation of a patent. The theory of a patentee may be entirely erroneous and yet the thing which he invented may be protected by his patent.

The applicant may have been of opinion that the asphaltum was saponified in the particular composition which he specifies as exhibiting his invention, and he may have been mistaken as to that. But whether he was or not is of no consequence. He made known to the public a specific composition for bricking coal. That is his invention. It now belongs to the public who have nothing to do but to make the composition and to use it for its useful purposes, regardless of whether or not the asphaltum in it is saponified.

Also this patentee had a monopoly of his new bricking material although he may not have appreciated all of its qualities. Yet it does not follow that he did not appreciate them because he did not mention them. It is to be presumed that he intended his brick-fuel to be weather-proof by putting in the asphaltum, and it

is not to be presumed that he would so make it as to nullify the usefulness of the asphaltum.

As this applicant has and claims no more than the brick-making material of the patent in ingredients, proportions and manner of making, and using, he gets only the utilities of that material.

The decision of the Examiner is affirmed.

W. H. Looming
J. B. Nicholson
J. G. Looming } Examiners-in-Chief.

Case No. 1012,

Abandoned,

Filed Aug. 31, 1899.

Improvements in the Art of Bricking Pulverized
Material.

C l a i m s .

1. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in adding to the pulverized material a binding substance composed of a soluble rosin soap and a non-water soluble non-acid material having a high boiling point, and in subjecting the mixture so produced to heat, substantially as set forth.

2. In the art forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in adding to the pulverized material a binding substance composed of resinate of soda and a non-water soluble non-acid material having a high boiling point, and in subjecting the mixture so produced to heat, substantially as set forth.

3. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in adding to the pulverized material a binding substance composed of a soluble rosin soap and the residuum obtained from the distillation of petroleum, and in subjecting the mixture so produced to heat, substantially as set forth.

4. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in adding to the pulverized material a binding substance composed of resinate of soda and the residuum obtained from the distillation of petroleum, and in subjecting the mixture so produced to heat,

substantially as set forth.

5. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in forming an emulsion by adding to a viscid solution of a rosin soap a non-water soluble non-acid material having a high boiling point, in adding such emulsion to the pulverized material, and in subjecting the composition so obtained to heat, substantially as set forth.

6. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in forming an emulsion by adding to a viscid solution of resinate of soda a non-water soluble non-acid material having a high boiling point, in adding such emulsion to the pulverized material, and in subjecting the composition so obtained to heat, substantially as set forth.

7. In the art of forming pulverized material into bricks, briquettes, lumps and other aggregates, the improvement which consists in forming an emulsion by adding to a viscid solution of a rosin soap the residuum obtained from the distillation of petroleum, in adding such emulsion to the pulverized material, and in subjecting the composition so obtained to heat, substantially as set forth.

8. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in forming an emulsion by adding to a viscid solution of resinate of soda the residuum obtained by the distillation of petroleum, in adding such emulsion to the pulverized material, and in subjecting the composition so obtained to heat, substantially as set forth.

9. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improve-

ments which consists in adding to the pulverized material a binder composed of a soluble rosin soap and a non-water soluble non-acid material having a high boiling point, in forming the composition into bricks or briquettes, and in baking said bricks or briquettes, substantially as set forth.

10. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in adding to the pulverized material a binder composed of resinate of soda and a non-water soluble non-acid material having a high boiling point, in forming the composition into bricks or briquettes, and in baking said bricks or briquettes, substantially as set forth.

11. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in adding to the pulverized material a binder composed of a soluble rosin soap and the residuum obtained from the distillation of petroleum, in forming the composition into bricks or briquettes, and in baking said bricks or briquettes, substantially as set forth.

12. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in adding to the pulverized material a binder composed of resinate of soda and the residuum obtained from the distillation of petroleum, in forming the composition into bricks or briquettes, and in baking said bricks or briquettes, substantially as set forth.

13. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in first making an emulsion by adding to a viscid solution of a soluble rosin soap a non-water soluble non-acid material having a high boiling point, in adding said emulsion to the pulverized material, in forming the pulverized material into bricks or briquettes, and in

baking said bricks or briquettes, substantially as set forth.

14. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in forming an emulsion by adding a viscid solution of resinate of soda and a non-water soluble non-acid material having a high boiling point, in adding said emulsion to the pulverized material, in forming the pulverized material into bricks or briquettes, and in baking said bricks or briquettes, substantially as set forth.

15. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in forming an emulsion by adding a viscid solution of a soluble rosin soap to the residuum obtained from the distillation of petroleum, in adding such emulsion to the pulverized material, in forming the pulverized material into bricks or briquettes, and in baking said bricks or briquettes, substantially as set forth.

16. In the art of forming pulverized material into bricks, briquettes, lumps or other aggregates, the improvement which consists in forming an emulsion by adding to a viscid solution of resinate of soda the residuum obtained from the distillation of petroleum, in adding such emulsion to the pulverized material, in forming the pulverized material into bricks or briquettes, and in baking said bricks or briquettes, substantially as set forth.

No. 2302

C. 1013

Serial No. 731137

Applicant.

Thomas A. Edison

Address. ✓

Title

Inpts. in Phonographs

Filed

September 21-1899Examiner's Room No. 219

Assignee

Ass'g't Exec.

Recorded

Liber

Page

Patent No.

Issued

ACTIONS.

1. Replies Oct. 25, 1899.
2. Agreement Dec. 8, 1899.
3. Replies Dec. 28, 1899.
4. Amended Dec. 4, 1900.
5. Replies Dec. 15, 1900.
6. Agreement Nov. 8, 1901.
7. Replies Nov. 20, 1901.

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RICHARD N. DYER,

31 Nassau Street,

NEW YORK CITY.

Dyer =

Take this out in France,
England & Germany &
Austria as well -

Edison

Aug 24th 99

Object of the invention is to produce very loud reproduction of sound on phonograph.

RECEIVED
AUG
1899
RICHARD H. DY

The invention consists in

The use of as sensitive or diaphragmic recorder as is possible & proportioning the number of threads per inch so that the greatest depth of indentation will not use up the surface and cut into the parallel record - Up to the present time, the widths have been

With the Circular Cutter² on wax & reproducing ball too of an inch if the Recorder is made very sensitive. The width of too of an inch is insufficient to give the required depth without at the same time causing the indentation to cut into the ~~parallel~~ adjoining threads hence there will be Echoes ~~off~~ in reproducing due to these overlapping

3

indentations to obviate
this I proportion the
space for recording to the
sensitivity of the recorder.

The most sensitive recorder
which it is practicable
to use requires as
space ~~of~~ which is given
by 75 threads per inch
+ even in this case with
very loud sounds there
is a slight lapping
but 75 threads or less
is necessary to obtain
maximum results with

4

present recorders -

heretofore it has been the
practice to use recording
knives from 35 to 40

diameters - ~~the~~ the
smaller the diameter
of the recording knife
the greater can be the
depth of the indentation
on any given threads per
inch without the
indentation cutting into
the adjacent record

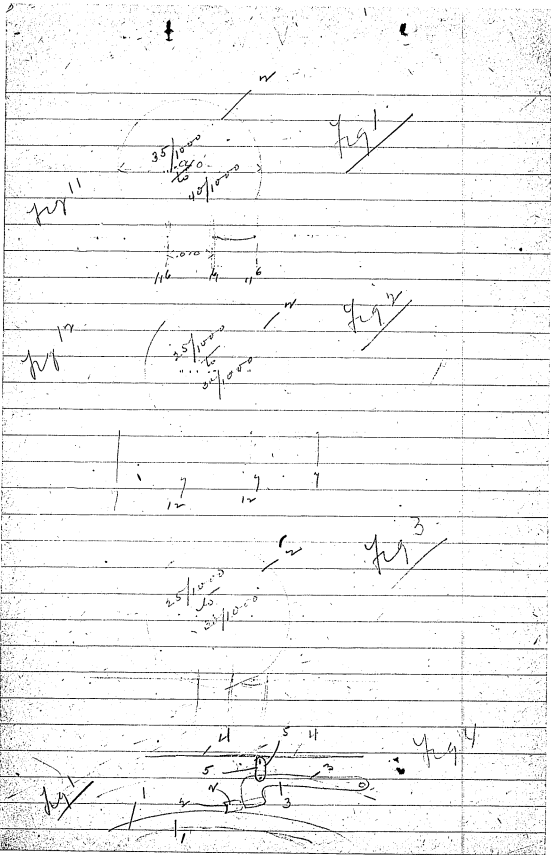
If the diameter is made very much less than 30/1000 - The wax is not cut properly the bottom of the indentations being rough - The best commercial diameter is from 30 to 25/1000. Diameter of this size employed with a cylinder with 75 or less threads per inch gives the best results - The surface

Velocity to give the maximum loudness should not be less than 150 ft per minute any greater speed does not materially increase the loudness -

Claims -

~~The combination of a cylinder with 75 or less threads per inch and a cylinder with 75 or less threads per inch~~
Study out claims

J. H. E. Linn



LAW OFFICES
OF
DYER, EDMONDS & DYER,
SPECIALTY,
Patents and Patent Causee,
31 NASSAU ST., NEW YORK.

RICHARD N. DYER,
REGISTRATION NO. 448.
SAMUEL O. EDMONDS,
REGISTRATION NO. 449.
FRANK L. DYER,
REGISTRATION NO. 450.

Petition.

To the Commissioner of Patents:

YOUR PETITIONER THOMAS A. EDISON, a citizen of the United States, residing and having his post office address at Llewellyn Park in the County of Essex and State of New Jersey,

PRAYS THAT LETTERS PATENT MAY BE GRANTED TO HIM FOR THE IMPROVEMENT IN
PHONOGRAPHS

SET FORTH IN THE ANNEXED SPECIFICATION; AND HE HEREBY APPOINTS DYER, EDMONDS AND DYER (A FIRM COMPOSED OF RICHARD N. DYER, SAMUEL O. EDMONDS AND FRANK L. DYER), OF NO. 31 NASSAU STREET, NEW YORK CITY, HIS ATTORNEYS, WITH FULL POWER OF SUBSTITUTION AND REVOCATION, TO PROSECUTE THIS APPLICATION, TO MAKE ALTERATIONS AND AMENDMENTS THEREIN, TO RECEIVE THE PATENT, AND TO TRANSACT ALL BUSINESS IN THE PATENT OFFICE CONNECTED THEREWITH.

Thomas A. Edison

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the County of Essex and State of New Jersey, have invented a certain new and useful IMPROVEMENT IN PHONOGRAPHS, ^(Case No. 1013) of which the following is a specification:-

My invention relates to various new and useful improvements in phonographs, and the object of the invention is to provide a phonograph wherein the reproduction secured may be improved both in loudness and in quality. The standard phonographs and allied talking machines are provided with cylindrical phonograms, in which a spiral record groove will be formed, having a pitch of one hundred threads per linear inch. Experience has demonstrated the superiority of the type of recording device described in my ^{U. S.} patent No. 430,278, by which will be obtained a record composed of a series of more or less connected gouges, waves or depressions, all of greater width than depth, and presenting in cross-section at any point an arc of a circle, due to the curved cutting edge of the recorder. Since the width of the space in which the record is formed is limited to .01 of an inch, a restriction is imposed upon the depth to which it may be permissible to form the record in the blank.

In order that the recording device may not exceed the proper limits, relatively insensible diaphragms are employed, but even when diaphragms of this character are used some of the depressions or waves are cut to so great a depth that they lap over upon the adjacent record already formed

and upon the space to be occupied by the record to be cut upon the next rotation of the blank. This overlapping of the record results in the production of echoes, or, in other words, in the accompaniment with the sounds reproduced by the engagement of the reproducer with the record groove, of a faint reproduction of the sounds produced by the engagement of the reproducer with the overlapping or extended portions of the adjacent record. The formation of these echoes in the reproduction is objectionable.

At the present time, in the talking machine art, the circular recording devices have been made with a diameter varying from .035 to .040 of an inch. Although with a recording device of less diameter the depth of the waves or indentations of the record could be increased without overlapping, this could only be done at a sacrifice of the quality of the record, since with recording devices having a diameter considerably less than .030 of an inch, the composition of the blank will not be cut smoothly at the bottom of the record.

What I propose by my present invention is the production of a phonograph wherein a recording device may be employed having a curved cutting edge, said recording device being sufficiently large to secure the best commercial results, say from .025 to .030 of an inch in diameter, and to employ therewith a very sensitive diaphragm, or, if the present diaphragms are used, to make possible the recording of sounds of increased volume without overlapping of the record.

In carrying out my invention, I preferably employ as sensitive a diaphragm as possible for actuating the recording device and proportion the number of threads per inch of the record with respect to the sensitiveness of such diaphragm,

so that the diaphragm will be free to respond to original sounds to actuate the recording device in the formation of a record groove which shall be free from overlapping, of relatively great amplitude and free from objectionable roughness.

In order that the invention may be better understood, attention is directed to the accompanying drawing, forming a part of this specification, and in which

Figure 1 is a diagrammatic view, showing a circular recording device in cross-section and illustrating the recording device cutting a record in a phonograph blank having a pitch of one hundred threads to the inch, the record being cut to the maximum depth which can be secured without overlapping;

Figure 2, a corresponding view of my present improvements;

Figure 3, a corresponding view, showing the extent of overlapping which would take place if my improvements were employed in connection with a phonograph blank having a pitch of one hundred threads per inch; and

Figure 4, a cross-section, through a portion of the blank, of the recorder and diaphragm of the general type shown in my said patent.

In all of the above views corresponding parts are represented by the same numerals of reference.

1 represents a phonograph blank which is made of the usual soaplike composition; 2, the recording device, having a curved cutting edge; 3, the pivoted lever carrying said recording device; and 4, the diaphragm connected to the lever by a link 5, said diaphragm being preferably of as great sensitiveness as possible.

In figures 1, 2 and 3, I show the head of the recording device as having the cutting edge in the form of a true circle, as is desirable. Heretofore it has been the practice to make the recording devices with a diameter ranging from .035 to .040 of an inch, as indicated in figure 1. The vertical lines 6, 6, 6, in figure 1, illustrate the extent in width of the available surface on the phonograph blank having a pitch of one hundred threads per inch. The recorder 2, in figure 1, it will be observed, has entered the blank to an extent to occupy the entire distance between two of the lines 6, 6, so that the record which is being formed is of a maximum width, if the production of echoes is to be avoided, as is desirable. Taking the depth indicated as a maximum possible at the present time to secure in the art, it is the practice to so adjust the recording device that it will normally engage or track the record to about half this extent, so that in making a maximum vibration overlapping will be avoided as the diaphragm moves towards the record, and the danger of the recording device leaving the surface of the blank will be overcome upon the return movement. It is difficult, however, to realize these ideal conditions, and at the present time almost all records are partly characterized by the objectionable overlapping referred to. In order that the extent of the vibrations possible with a recording device of the diameter indicated, working on a blank having a pitch of one hundred threads to the inch, may be properly controlled, the diaphragms by which the recorders are operated are made preferably relatively insensible or else care is taken not to impress upon them sounds of too much volume.

Referring to figure 2, the recording device 2 is represented as having a diameter from .025 to .030 of an

inch, and the record with which such a recorder cooperates is provided with a pitch of not more than seventy-five threads per linear inch, as indicated between the lines 7, 7,

7. Obviously the space allowed for the formation of a record in this instance is considerably more than at the present time, and since the diameter of the recorder is slightly less, the entire space to be occupied by the record can be utilized in the formation of indentations of considerably greater amplitude than is now possible. The difference in the amplitude of vibrations which it is possible to secure with my present improvements is graphically shown by a comparison of the two figures. Since vibrations of much greater amplitude can be secured with my present improvements, the recorder can be adjusted to track to a correspondingly greater depth than is now feasible, and the diaphragm 4 can be made correspondingly more sensitive or can be impressed with sounds of correspondingly greater volume. By thus observing the correct proportions between the sensitiveness of the diaphragm or the volume of the sounds impressed thereon and the width of the space offered for the making of the record, it is possible to obtain phonographic records which are of greater amplitude than have been heretofore secured, not characterized by an objectionable overlapping upon the adjacent grooves. The extent of overlapping which would take place if an attempt were made to use a sensitive diaphragm with a phonograph blank having a pitch of one hundred threads per inch, the assumption being that the record shall be of as great an amplitude as I have shown in figure 2, is very clearly illustrated in figure 3, from which it will be seen that the record which is being formed has overlapped almost halfway upon the record already formed at the right, and upon

the left has occupied almost half the space which is to be taken up in the formation of the record at that point when the blank has made a complete further turn.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is as follows:-

1. In a phonograph, the combination with a recording device having a curved cutting edge and a diaphragm connected to said recording device and adapted to be impressed by original sounds, of a phonograph blank with which the recorder coöperates to form a spiral record groove having a pitch sufficiently coarse to allow for the formation without overlapping of the depressions representing an abnormal amplitude, substantially as set forth.

2. In a phonograph, the combination with a recording device having a curved cutting edge and a diaphragm of high sensitiveness, of a phonograph blank with which the recorder coöperates to form a spiral record, the pitch of which is proportional to the sensitiveness of the diaphragm, to allow for the formation without overlapping of waves or depressions of an abnormal amplitude, substantially as set forth.

3. In a phonograph, the combination with a recording device having a curved cutting edge, and a diaphragm connected to said recording device and adapted to be impressed by original sounds, of a phonograph blank with which the recorder engages to form a record groove having a pitch of not more than seventy-five threads per linear inch, substantially as set forth.

4. In a phonograph, the combination with a recording device having a curved cutting edge and a diaphragm of high sensitiveness, of a phonograph blank with which the re-

*Entered
Dec. 14, 1900
and Sub. 1*

DEC - 4 1900

and the hearing method is entirely absent of abnormal amplitude

recorder engages to form a record groove having a pitch of not more than seventy-five threads per linear inch, substantially as set forth.

DEC - 4 1990

5. In a phonograph, the combination with a recording device having a curved cutting edge with a diameter of not less than .025 of an inch, and a diaphragm connected to said recording device and adapted to be impressed by original sounds, of a phonograph blank with which the recorder co-operates to form a spiral record groove having a pitch sufficiently coarse to allow for the formation without overlapping of depressions representing an abnormal amplitude, substantially as set forth.

DEC - 4 1990

6. In a phonograph, the combination with a recording device having a curved cutting edge with a diameter of not less than .025 of an inch, and a diaphragm of high sensitiveness, of a phonograph blank with which the recorder co-operates to form a spiral record, the pitch of which is proportional to the sensitiveness of the diaphragm, to allow for the formation without overlapping of waves or depressions of an abnormal amplitude, substantially as set forth.

3. As a new article of manufacture, a phonogram having a record cut spirally on its surface, said record being composed of a series of more or less connected gouges or ^{representing at all points, relatively shallow waves} waves having a greater width than depth and further characterized by freedom from overlapping, substantially as set forth.

4. As a new article of manufacture, a phonogram having a record cut spirally thereon with a pitch of not less than seventy-five threads per linear inch, said record being formed of a series of more or less connected gouges or ^{and representing at all points, relatively shallow waves} depressions bearing a definite relation in breadth to depth, substantially as set forth.

THIS SPECIFICATION SIGNED AND WITNESSED THIS

17th DAY OF Sept 1899

Thomas A. Edison

Witnesses:

1. J. G. Randolph
2. Edwin C. Hagerty

Oath.

State of New Jersey
County of Essex } ss.:

THOMAS A. EDISON

, THE ABOVE-NAMED

PETITIONER, BEING DULY SWORN, DEPOSES AND SAYS THAT HE IS A citizen
OF THE United States and a resident of Llewellyn Park, in the
County of Essex and State of New Jersey;
THAT HE VERILY BELIEVES HIMSELF TO BE THE ORIGINAL, FIRST AND SOLE INVENTOR
OF THE IMPROVEMENT IN PHONOGRAPHS

DESCRIBED AND CLAIMED IN THE ANNEXED SPECIFICATION; THAT HE DOES NOT
KNOW AND DOES NOT BELIEVE THAT THE SAME WAS EVER KNOWN OR USED BEFORE
HIS INVENTION OR DISCOVERY THEREOF; OR PATENTED OR DESCRIBED IN ANY
PRINTED PUBLICATION IN THE UNITED STATES OF AMERICA OR ANY FOREIGN COUNTRY
BEFORE HIS INVENTION OR DISCOVERY THEREOF, OR MORE THAN TWO YEARS PRIOR
TO THIS APPLICATION; OR IN PUBLIC USE OR ON SALE IN THE UNITED STATES FOR
MORE THAN TWO YEARS PRIOR TO THIS APPLICATION, AND THAT NO APPLICATION
FOR FOREIGN PATENT HAS BEEN FILED BY HIM OR HIS LEGAL REPRESENTATIVES OR
ASSIGNS IN ANY FOREIGN COUNTRY.

SWORN TO AND SUBSCRIBED BEFORE ME THIS

17th DAY OF Sept 1899

(SEAL)

Thos A. Edison
J. G. Randolph
NOTARY PUBLIC.

Case No 1013

1 Sheet

Serial No. 731,137

Fig. 1

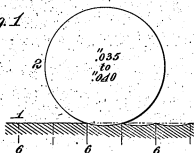


Fig. 2

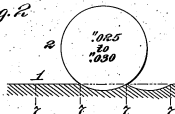


Fig. 3

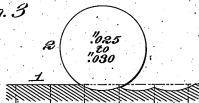
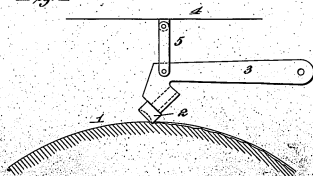


Fig. 4



Witnesses:

Jan. F. Coleman
Geo. A. Taylor

Inventor

Thomas A. Edison
By Roger Edmundson

Att'y's.

2-020.

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

DEPARTMENT OF THE INTERIOR,

United States Patent Office,

Washington, D. C., Sept. 21, 1899

SIR:

I have to acknowledge the receipt of the petition, specification, oath, and
drawing of your alleged improvement in Phonograph

with Fifteen Dollars as the first fee payable thereon.

The papers are duly filed, and your application for a patent will be taken up
for examination in its order

You will be duly advised of the examination.

Very respectfully,

Case will be taken up for
examination in about one month.

C. H. Duell
Commissioner of Patents.
Thos. A. Edison
% Dyer, Edmonds & Dyer,
37 Nassau St., N.Y. City.

NOTE.—In order to constitute an application for a patent, the inventor is by law required to furnish his petition, specification, oath, and drawings (where the nature of the case admits of drawings) and to pay the required fee.
No application is considered as complete, nor can any official action be had thereon, until all its parts, as here specified, are furnished in due form by the inventor or applicant.

Series of 1880.

No. 731137



When payment is made by check or draft, the credit is entered in respect to the collection of the same.

Room No. 219
 All communications should be addressed to
 "The Commissioner of Patents,
 Washington, D. C."

All communications respecting this
 application as filed give the serial number,
 date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,

J. H. D.

UNITED STATES PATENT OFFICE,

WASHINGTON, D. C.

October 25, 1899.

Thomas A. Edison,

Care Dyer, Edmonds & Dyer,

#31 Nassau Street,

New York, N.Y.

MAILED.

OCT 25 1899

U. S. Patent Office

Please find below a communication from the **EXAMINER** in charge of your application.

for Phonographs, filed sept. 21, 1899, serial number 731,137.



Claims 1, 2, 3, 4, 7 and 8 are rejected on
Jacques, #413,262, October 22, 1899, Phonographs. The model shows
 threads of a pitch less than 75 per inch, in fact about 50 per
 inch, there are waves of less depth than width and the threads
 are characterized by freedom from overlapping.

Claims 5 and 6 are rejected on Jacques as above, in view of
Edison #430,278, June 17, 1890, Graphophones, which latter shows
 cylindrical either the size of which relative to the pitch of screw
 being a matter of judgment and convenience than invention.

THOMAS A. EDISON

PHONOGRAPHS

FILED SEPTEMBER 21, 1899

SERIAL NO. 731,137

ROOM NO. 219.

HONORABLE COMMISSIONER OF PATENTS,

S I R :-

The Examiner's attention is directed to the fact that the first six claims are all limited to the use in the combination of a recording device having a curved cutting edge. The use of such a recording device resulted in the objectionable overlapping which applicant refers to in his specification, which overlapping is overcome by applicant by means of the invention recited in the specification. The patent to Jacques cited by the Examiner against all the claims, does not employ a recorder having a curved edge, and it would therefore be immaterial to Jacques whether the threads of the record were of one pitch or another. Jacques refers in his patent only to the employment of a "sharp pointed stylus", which could not possibly cut a curved record. So far as the seventh and eighth claims are concerned, each of said claims is limited to the formation of a record which shall be of greater width than depth. This is not the case with Jacques, since the use of a sharp pointed stylus would inevitably result in the production of a record having a greater depth than width. The remarks of the Examiner as to the fifth and sixth claims seem to have been incorrectly transcribed by the typewriter.

Very respectfully,

Attorneys for Edison.

New York, December 8, 1899.

Room No. 212,
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

J. H. D.

WASHINGTON, D. C. December 28, 1899.

Thomas A. Edison,

Care Dyer, Edmonds & Dyer,
#31 Nassau Street,
New York, N.Y.

MAILED.

DEC 28 1899

U. S. Patent Office

Please find below a communication from the EXAMINER in charge of your application.
for Phonographs, filed Sept. 21, 1899, serial number 731,137.

C. H. Duell
Commissioner of Patents.

The claims in this case are all rejected on the patent to Jacques of record. The model in said patent has a record, the pitch of which is approximately fifty threads to the inch. This record appears to have been cut with a curved tool and the gouges are broader than they are deep. There appears to be no overlapping on this record.

The claims are furthermore rejected on the patent to Edison of record. The difficulty that applicant is endeavoring to cure by the means set forth in this application is well known in the

art and the means by which he undertakes to cure it are not such as amount to invention over the patent cited but amount merely to a matter of calculation. If two grooves overlap, it would seem to be quite obvious to any one skilled in the art who should wish to prevent this overlapping to make the grooves of greater pitch, and it is also a matter of mere mechanical calculation and not a matter of invention to make the stylus of less diameter as a means of giving the groove the same depth as before without giving it so great a breadth.

It is not known what is meant in several of the claims by a spiral record, the pitch of which is proportional to the sensitiveness of the diaphragm. This expression is altogether indefinite. It would be impossible in any particular case to say whether or not the pitch of the record was proportional to the sensitiveness of the diaphragm which made it.

Claim 7 is rejected on any well made phonograph record.

Claim 8 is objected to on the ground that applicant has not set forth a record in which the gouges or depressions bear a definite relation in breadth to depth. The ratio of the breadth of a groove cut by a curved stylus to its depth depends on the depth of the groove. The deeper the groove, the less would this ratio be.

THOMAS A. EDISON :

PHONOGRAPHS :

FILED SEPTEMBER 21, 1899 :

ROOM NO. 219.

SERIAL NO. 731,137 :

HONORABLE COMMISSIONER OF PATENTS,

S I R :-

Without prejudice, we amend as follows:

Cancel claims 1 and 2, and substitute:

----- 1. In a phonograph, the combination with a recording device having a curved cutting edge representing a shallow arc of sufficient extent to be only partially engaged with the recording material in recording sounds of abnormal amplitude, and a diaphragm connected to said recording device and adapted to be impressed by original sounds, of a phonograph blank with which the recording device cooperates to normally form a shallow spiral groove therein, the relative lateral feed of the blank and recording device giving to the record groove a sufficient pitch to prevent the cutting edge from overlapping in the recording of such abnormal sounds, substantially as and for the purposes set forth.-----

Change the numeral of claim 3 to 2, and in said claim, line 2, erase the word "curved", and after "edge" in said line insert ----- representing a shallow arc of sufficient extent to be only partially engaged with the recording material in recording sounds of abnormal amplitude-----

Cancel claims 4, 5 and 6, and change the numerals of claims 7 and 8, to 3 and 4.

Present claim 3, line 4, after "depth" insert ----- representing at all sections relatively shallow arcs -----

Present claim 4, line 5, erase "bearing a definite relation in breadth to depth", and substitute ----- and representing at all sections relatively shallow arcs -----

The subject-matter of claim 1 is designed to take the place of claims 1 and 2 which have been erased, but to set forth more clearly applicant's advance in the art, and at the same time to distinguish from the patent to Jacques which the Examiner refers to and wherein the record is made with a pointed recorder. By the expression "the pitch of which is proportional to the sensitiveness of the diaphragm" in erased claim 2, and the expression "a diaphragm of high sensitiveness" in erased claim 4, applicant meant that as the pitch of the record was increased, the sensitiveness of the diaphragm could be also increased. Such a construction being in fact a part of applicant's invention and necessarily following from the increase in the pitch of the record groove, a claim on the latter feature manifestly includes the former.

The claims as now presented are fully distinguished from the Jacques patent, wherein it is stated that the record is formed by a "sharp pointed stylus". If the model on record shows a record which "appears to have been cut with a curved tool", it must be a fact that the model does not represent the Jacques invention. We assume, however, that by the expression "sharp pointed stylus" Jacques has reference to a stylus made as sharp as practicable, and that therefore the extreme cutting edge thereof may be formed on a curve of relatively small diameter, or, in other words, that the stylus is, microscopically considered, relatively blunt. A record formed with a stylus of this character could not possibly overlap, even if the pitch of the record groove were made finer than the present standard.

Applicant's prior patent does not meet the claims as they are now presented, because, as stated in the specification of the present case, with a record formed of the standard pitch, overlapping is inevitable, and this is the case with the reference.

Very respectfully,

THOMAS A. EDISON,

By _____

His Attorneys.

New York, December 4, 1900.

2-246.

Room No. 212.
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

All communications requesting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,

UNITED STATES PATENT OFFICE,

WASHINGTON, D. C., December 15, 1900.

J. H. D.

Thomas A. Edison,

Care Dyer, Edmonds & Dyer,

#31 Nassau Street,

New York, N. Y.

MAILED.

DEC 15 1900

U. S. Patent Office



Please find below a communication from the EXAMINER in charge of your application.

for Phonographs, filed Sept. 21, 1899, serial number 731,137.

C. H. Dwyer
Commissioner of Patents.

Claim 1 presented in the amendment filed the 7th inst., and claims 2, 3 and 4 are rejected on the grounds of rejection and the references cited of record. The devices claimed in claims 1 and 2 seem to involve merely the use of the devices shown in the patent of Jacques and applicant's patent cited, in a way that experiment, experience and judgment would suggest. There appears to be no novelty in the mechanical parts referred to in the claims.

Claims 1 and 2 define combinations of parts and claims 3 and 4 define the phonograph record as an article. Since records

NOTE 11. In every amendment the exact word or words to be stricken out or inserted in the application must be specified and the precise point indicated where the emendation or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper.

NOTE 12. Every application for a patent filed subsequent to December 31, 1897, responsive action must be made by the inventor within one year after the date when notice of the same will become abundant.

(2)

✓ have acquired a distinct⁺_Δ status in the art as a separate subject of manufacture and sale, division must be required to the end that claims for the combinations of parts be defined in one application and claims for the record be prosecuted in another application, applicant electing which alleged invention he will further prosecute in this application.

THOMAS A. EDISON

PHONOGRAPHS

FILED SEPTEMBER 21, 1899

SERIAL NO. 731,137

EXAMINER'S ROOM NO. 219.

HONORABLE COMMISSIONER OF PATENTS,

S I R :—

We note that the Examiner still rejects the new first claim, as well as the remaining claims as amended, in view of the patents to Jacques and to Edison of record. The issue between the Examiner and ourselves seems to be only a question of opinion, on which we have already expressed our views as fully and clearly as possible. In requesting a reconsideration, therefore, for the purpose of appeal, we reiterate the arguments which have already been made, and express the hope that the Examiner may favorably entertain the claims in view of the meritorious character of applicant's invention. A rejection on the ground of lack of invention where the references admittedly are insufficient, should not, we submit, be taken except in the clearest kind of a case. That, we believe, is not the situation here.

We note that in his last letter the Examiner for the first time raises the question of division, but we hope that that question may be held in abeyance until the appeal is definitely settled. Should the appeal be unsuccessful, applicant would in this way be relieved of the expense of filing a separate divisional application; whereas on the other hand, if the case were divided, a favorable decision as to one set of claims might not necessarily carry the other claims in its terms. It is therefore only as a matter of

expedience and economy that we make the request at this time.

Very respectfully,

THOMAS A. EDISON,

By _____

His Attorneys.

New York, November 8, 1901.

REMARK. In every submission the exact word or words to be withdrawn and/or inserted in the application must be specified, and the precise points indicated where the changes or insertions are to be made. All such communications must be on sheets of paper separate from the papers previously filed, and written on both sides of the paper.

Room No. 310
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

2-246.

J. H. D.
DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C.

All communications respecting this
application should give the serial number,
date of filing, and title of invention.



November 20, 1901.

Thomas A. Edison,
Care Dyer, Edmonds & Dyer,
#31 Nassau Street,
New York, N.Y.

MAILED.
NOV 20 1901
U. S. Patent Office

Please find below a communication from the EXAMINER in charge of your application.
for Phonographs, filed Sept. 21, 1890, serial number 731,137.

R. I. Allen
Commissioner of Patents.

This action is made responsive to the letter from applicant dated the 8th and filed the 9th instant.

The office can add no other grounds of rejection of the claims to those of record. Applicant seems simply to have proportioned existing parts in such a way that the sound grooves may not overlap without making any substantial structural change.

Applicant's attention is invited to the following decisions that views unfavorably statements of result, ^{and objection} function in claims... See ex parte Schweitzer 97 O.G., 1371, in view of which claims 1 and 2 are objected to. The claims are all again rejected in view of former grounds of rejection. Referring to the matter of division, final action in this matter will be deferred in view of the conditions referred to in applicant's letter above referred to.

Richard L. Rogers
Samuel B. Edwards
Frederic L. Rogers

Law Offices
Geyer, Edmunds & Geyer
Specially: Patents & Patent Claims
21. Nassau Street.

Public Address
Telephone No. 2910
Rt. No. 2910

New York November 10, 1902.

Thomas A. Edison, Esq.,
Orange,
N. J.

Dear Sir,-

On September 21st 1899 we filed for you an applica-
tion (E. 1013) covering an improvement in phonographs con-
sisting in making the threads 75 to the inch instead of 100
to the inch, and preferably reducing the diameter of the re-
cording device to from .025 to .03 of an inch instead of from
.035 to .04 of an inch, as at present used. The general
idea was to secure very deep records without overlapping.
The Examiner rejects the case, and if anything further is
to be done it must be by way of appeal, which requires to be
taken before the 20th of this month. We wish therefore that
you would give the matter your early attention, in order that
we may take the appeal, if necessary, in time. The position
of the Examiner, broadly speaking, is that no invention would
be required to overcome overlapping merely by increasing the
pitch of the feed, or by reducing the diameter of the record-
er, or by both of these expedients. No reference has been
cited showing the invention specifically. We believe that
the Examiners in Chief would be disposed to sustain the Ex-
aminer in his rejection, and therefore doubt if the appeal
would be successful. Our view of the case therefore is that

*If there is no invention in this
then there can be no invention in
making the threads larger. The office
is inconsistent - let it lapse*

E

the application should be dropped, unless of course you can suggest some argument which would support the patentability of the invention.

Yours truly,

Alfred Edwards

FID/AL

THOMAS A. EDISON

IMPROVEMENTS IN PHONOGRAPHS

FILED SEPTEMBER 21, 1899

SERIAL NO. 731,137

OUR NO. 2302.

EDISON'S NO. 1013.

CLAIMS.

1. In a phonograph, the combination with a recording device having a curved cutting edge and a diaphragm connected to said recording device and adapted to be impressed by original sounds, of a phonograph blank with which the recorder coöperates to form a spiral record groove having a pitch sufficiently coarse to allow for the formation without overlapping of the depressions representing an abnormal amplitude, substantially as set forth.

2. In a phonograph, the combination with a recording device having a curved cutting edge and a diaphragm of high sensitiveness, of a phonograph blank with which the recorder coöperates to form a spiral record, the pitch of which is proportional to the sensitiveness of the diaphragm, to allow for the formation without overlapping of waves or depressions of an abnormal amplitude, substantially as set forth.

3. In a phonograph, the combination with a recording device having a curved cutting edge and a diaphragm connected to said recording device and adapted to be impressed by original sounds, of a phonograph blank with which the recorder engages to form a record groove having a pitch of not more than seventy-five threads per linear inch, substantially as set forth.

4. In a phonograph, the combination with a recording device having a curved cutting edge and a diaphragm of high sensitiveness, of a phonograph blank with which the recorder engages to form a record groove having a pitch of not more than seventy-five threads per linear inch, substantially as set forth.

5. In a phonograph, the combination with a recording device having a curved cutting edge with a diameter of not less than .025 of an inch, and a diaphragm connected to said recording device and adapted to be impressed by original sounds, of a phonograph blank with which the recorder cooperates to form a spiral record groove having a pitch sufficiently coarse to allow for the formation without overlapping of depressions representing an abnormal amplitude, substantially as set forth.

6. In a phonograph, the combination with a recording device having a curved cutting edge with a diameter of not less than .025 of an inch, and a diaphragm of high sensitiveness, of a phonograph blank with which the recorder cooperates to form a spiral record, the pitch of which is proportional to the sensitiveness of the diaphragm, to allow for the formation without overlapping of waves or depressions of an abnormal amplitude, substantially as set forth.

7. As a new article of manufacture, a phonogram having a record cut spirally on its surface, said record being composed of a series of more or less connected gouges or waves having a greater width than depth and further characterized by freedom from overlapping, substantially as set forth.

8. As a new article of manufacture, a phonogram having a record cut spirally thereon with a pitch of not less

than seventy-five threads per linear inch, said record being formed of a series of more or less connected gouges or depressions bearing a definite relation in breadth to depth, substantially as set forth.

No. 2203Serial No. 731,6266. 10. 4
1014

Applicant.

Thomas A. Wilson

Address.

Title

Filed

Assignee

Ass'g't Exec.

Recorded

Liber

Page

Patent No. 652 457

Issued

June 26, 1900

ACTIONS.

1. Rejected Oct. 25, 1899. 16
2. Amended Dec 30 " 17
3. Rejected January 13, 1900. 18
4. Amended January 23, 1900. 19
5. to from O. Feb. 12, 1900. 20
6. Amended Feb. 24, 1900. 21
7. to from O. March 13, 1900. 22
8. to O. Apr. 11, 1900. 23
9. Amended April 19, 1900. 24
10. Amended May 9, 1900. 25
11. Rejected May 9, 1900. 26
12. Amended May 10, 1900. 27
13. Allowed June 2, 1900. 28
14. Final Dec. 1900. 29
15. to O. June 27, 1900. 30

RICHARD N. DYER,

31. Nassau Street,
NEW YORK CITY.

Eg 5517

Ex 20 + 21

note
see book # 247
Re-completed No 11, 857
Apr 25, 1900

which was given to Dyer by
W. C. Dyer, June 15, 1900
W. C. Dyer, June 15, 1900

✓
Frank W. Dyer -

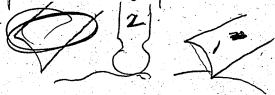
Rush this patent through
as fast as you can
I want it in office before
I give my testimony on
by phone 708

RECEIVED
SEP
1899
RICHARD H. DRY

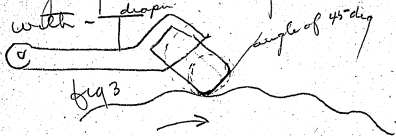
The object of this invention is to more accurately reproduce phonograph records ~~as per the present~~

The invention consists in the use of a reproducing point almost identical with the recording point now generally used excepting that the edge is rounded to prevent cutting the record when reproducing

The present method of recording ^{+ reproduction} now universally used is the Capped Circular recorder & the ball reproducer - figs. 1 & 2



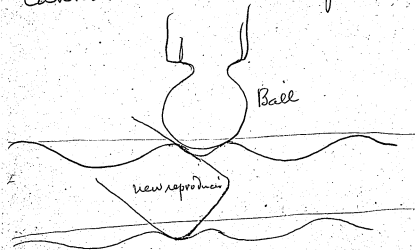
The improvement consists in using the recorder to reproduce - the ~~edge~~ ^{edge} being rounded slightly & the cupping dispensed with - ^{drop in}



By using a reproducer of this character the bearing takes place clear across the groove ~~of~~ or indentation made by the recorder ~~and~~ as is the case with the ball, and the total bearing surface is not very much less than with the ball but with this

(3)

form the bearing line is finer
 & can follow down into an
 indentation where the ball
 cannot as shown in fig 4



hence the overtones which are ~~not~~
~~the~~ formed by ~~the~~ indentations very
 close together the bottom of the
 same cannot be reached by
 the ball form whereas the new

(4)

form can follow to the bottom -

The form of reproduction joint
 also permits very perfect reproduction
 on the standard cylinder

now universally used without
 the necessity of increasing the
 surface velocity above the usual
 one ~~and~~

Syer

Claim the Cylinders reproduction
 joint -

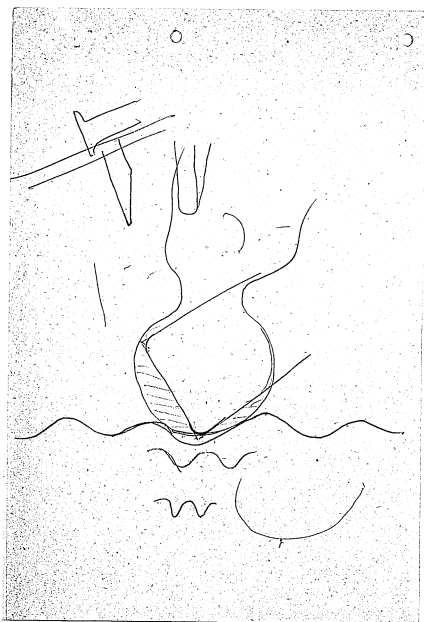
Claim in such a way that
 they cant evade it -
 it increases loudness & quality
 very much -

Sept 2 1899

JOE

$$\begin{array}{r}
 15 \\
 12 \\
 25-6 \\
 21-6 \\
 \hline
 83-10
 \end{array}$$

$$\begin{array}{r}
 21-9 \\
 \cancel{48}-6 \\
 \hline
 13-6
 \end{array}$$



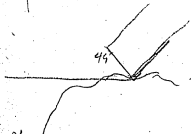
Dear =

Sept 7-1899



The reproducer paints
just the same in either
direction -

The angle should be
45° to the record

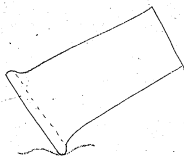


It can be more or less but
this is the best angle

2
It is difficult to draw
various methods of designing
the point because there
appears only one way
of that is to make
the ^{bearing} circle the same
or approximately the
same as that of the
recorder no matter what
that circle or shape
is & then the material
or form of the reproducer

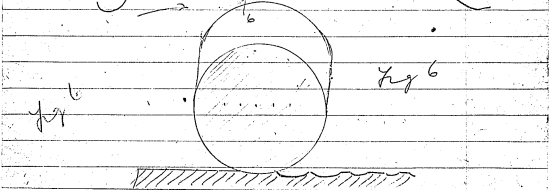
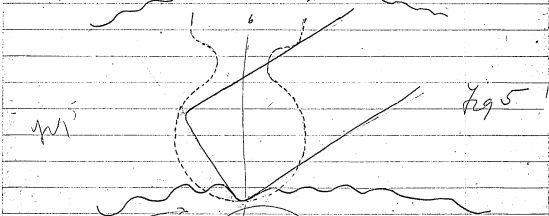
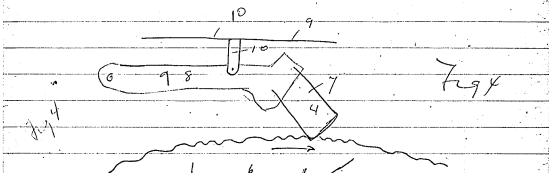
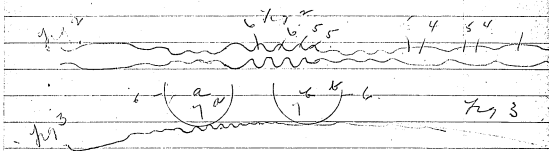
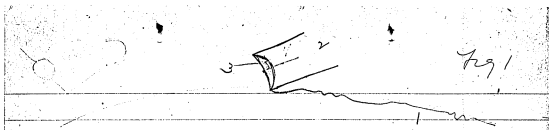
3

cut is immaterial -



bearing or contact area

JaE



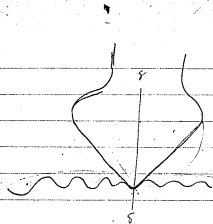


Fig 1

Fig 7

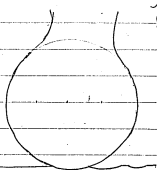


Fig 9

Fig 8

Fig 6

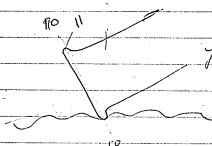


Fig 9

10



Fig 10

No. 2310Serial No. 734695

Applicant.

Thomas A. Edison

Address.

Title

Inpt. in Conveying Belts

Filed

October 25, 1899Examiner's Room No. 255

Assignee

Ass'g't Exec.

Recorded

Liber

Page

Patent No.

Issued

ACTIONS.

1. Replied Nov 18-1899.2. Amended Nov 5, 1900.3. Replied Nov. 23, 1900.

4. _____

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Brok at
J. A. Johnson
request
Nov 11/1901

RICHARD N. DYER,

31 Nassau Street,
NEW YORK CITY.

①

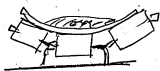
The object of this invention is to improve upon the present conveying belt and ~~increase~~ diminish the wear

The invention consists of the use with an ordinary flat conveying belt of ~~the~~ sides whereby the necessity of turning up the belt by pulleys or other devices is unnecessary -

Hitherto Conveying belts ~~of~~ used for conveying ores etc have not been used flat as the ore soon spreads over the whole width of the belt & then over the sides

2

This action being due to the action of the belt sagging between each pulley support & then straightening again - hence it is the practice to turn up the edge of the belt



by means of turn up or angle pulleys - These are expensive & more difficult to oil & keep dust out than the flat pulley. The ore is carried on only a portion of the belt, increasing

3

The wear at that point, and the constant concaving of the belt together with the wear in the center causes the belt to fail & tear apart in the center long before any appreciable wear takes place over the principal part of the belt.

By using invention the use of angle pulleys are unnecessary. The belt is strengthened & the wear is nearly the same if the entire width of the belt,

fig 1 shows the preferable method of constructing

4

The belt X is the ordinary cotton or rubber belt.

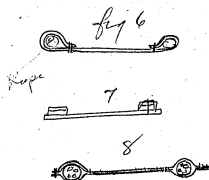
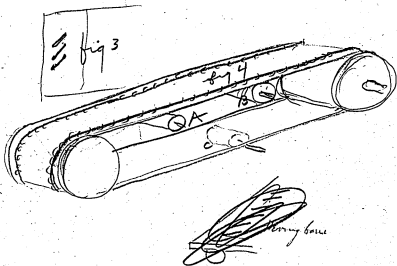
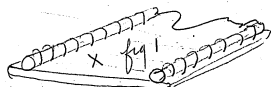
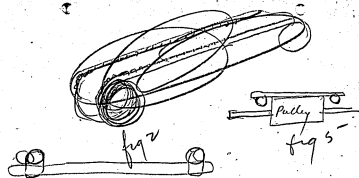
near the edges are secured ropes about $1\frac{1}{4}$ to $1\frac{1}{2}$ diameter.

These ropes are sewed to the belt by perforating the belt on each side of the rope with perforation sufficient to permit the ordinary belt loosing of rawhide to be passed through the convolutions of 1 inch are preferably $\frac{1}{2}$ inch apart, & where the loosing passes on the inside from one hole

5 -
to the other it is at an angle
this in fig 3 = fig 2
shows the end of the ropes
fig 4 a conveying belt with
idler or supporting pulleys
A B - These pulleys are the
full width of the belt but
the pulleys which support
the under half of the belt
c fig 4 are not the full
width - being less in
width than the space
between the ropes on the
belt,

6
figs 6 shows the rope with
the belt wrapped over it & secured
by sewing
fig 7 shows a stripe of
thick gutting riveted on
while 8 shows the plys of
belt split with the rope
inserted between the plys
& then sewed - as for make
a 6 ply belt is split -
giving 3 ply to each side -

Claim Everything - J. E.
Oct 19th 1899



LAW OFFICES
OF
DYER, EDMONDS & DYER,
SPECIALTY:
Patents and Patent Causes,
31 Nassau St., New York.

RICHARD N. DYER,
REGISTRATION NO. 488.
SAMUEL O. EDMONDS,
REGISTRATION NO. 490.
FRANK L. DYER,
REGISTRATION NO. 500.

Petition.

To the Commissioner of Patents:

YOUR PETITIONER THOMAS A. EDISON, a citizen of the
United States, residing and having his post office address
at Llewellyn Park, in the County of Essex and State of New
Jersey,

PRAYS THAT LETTERS PATENT MAY BE GRANTED TO HIM FOR THE IMPROVEMENT
IN CONVEYING BELTS



SET FORTH IN THE ANNEXED SPECIFICATION; AND HE HEREBY APPOINTS DYER, EDMONDS
AND DYER (A FIRM COMPOSED OF RICHARD N. DYER, SAMUEL O. EDMONDS AND FRANK L.
DYER), OF NO. 31 NASSAU STREET, NEW YORK CITY, HIS ATTORNEYS, WITH FULL POWER OF
SUBSTITUTION AND REVOCATION, TO PROSECUTE THIS APPLICATION, TO MAKE ALTERA-
TIONS AND AMENDMENTS THEREIN, TO RECEIVE THE PATENT, AND TO TRANSACT ALL
BUSINESS IN THE PATENT OFFICE CONNECTED THEREWITH.

Thomas A. Edison

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the County of Essex and State of New Jersey, have invented a certain new and useful IMPROVEMENT IN CONVEYING BELTS (Case No. 1015), of which the following is a description:

My invention relates to various new and useful improvements in conveying belts adapted for transporting material in bulk, such as iron ore, coal, grain, etc.

With the conveying belts as now made it is the practice to run the belts on supporting pulleys, and to concave the upper or carrying surface by the employment of angle-pulleys placed at suitable distances apart. The inclination of the angle-pulleys makes it very difficult to satisfactorily lubricate them and to insulate them from the dust, while the general arrangement is objectionable since practically the central portion only of the belt is subjected to wear, and in consequence the conveying belts heretofore used generally become entirely worn at their central portions while showing hardly any appreciable wear at their edges.

The object of my invention is to provide an improved conveying belt and supporting pulleys for the same, by which angle-pulleys are dispensed with, while in use the material will be distributed over substantially the entire surface of the belt so as to reduce the wear.

In order that the invention may be better understood, attention is directed to the accompanying drawings forming part of this specification, and in which figure 1 is

NOV 5 1906

a perspective view showing the preferred construction of belt and the manner of mounting the same; figure 2 a vertical section through figure 1; (and figures 3, 4 and 5 details of modifications.)

In all of the above views, corresponding parts are represented by the same numerals of reference.

NOV 5 1906

The belt 1 is made of the usual or ordinary material, preferably cotton or rubber, and is passed over the end pulleys 2, 2, which may be any desired distance apart. The belt 1 is provided, at or near each edge, with a confining rim or portion, by which the material in process of conveyance will be prevented from escaping. Preferably for this purpose I employ at each edge of the belt a rope 3 having a diameter of from one and one-quarter to one and one-half inches, and which is secured in place to the belt by means of a lacing 4 passed through perforations in the belt and forming loops over each rope, which loops are preferably about one-half inch apart. In this way the ropes 3 will materially strengthen the belt, while by securing them in place by means of lacings as explained, the ropes will be firmly and rigidly held in position and will practically constitute a part of the belt. When the supporting pulleys 2, 2 are a considerable distance apart, intermediate pulleys 5 are used to support the upper or carrying surface of the belt, said pulleys being mounted on horizontal axes and extending the entire width of the belt. The return portion of the belt is supported by pulleys 6, also mounted on horizontal axes but of less width than the belt, in order that the ropes 3, 3, or analogous portions, may clear the pulleys 6. (Instead of securing the ropes 3, 3 to the belt near the sides thereof as explained, each edge of the belt may be turned over upon a corresponding rope 3, as shown in figure 3, and secured in place by means of stitching, or

instead thereof the edges of the belt may be split, as shown in figure 5, and the rope 3 inserted in place between the plies, which are then sewed together, as shown in figure 5. While I prefer to use a rope, as explained, at each side of the belt, it will be understood that any other suitable material may be used for this purpose, and in figure 4 I show as an example of a further modification the employment of two strips 7, 7 of leather or any other suitable material secured one on top of the other and riveted or otherwise secured to the belt at each side thereof.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is as follows:

1. As a new article of manufacture, a conveying belt having rim portions at each side thereof, substantially as set forth.

2. In a conveying apparatus, the combination with the supporting pulleys mounted on horizontal axes, of a conveying belt carried by said supporting pulleys, and rim portions for said belt at each side thereof, substantially as set forth.

3. In a conveying apparatus, the combination with the supporting pulleys mounted on horizontal axes, of a conveying belt carried by said supporting pulleys, rim portions for said belt at each side thereof, intermediate supporting pulleys for the conveying portion of the belt of a width equal to that of the belt, and supporting pulleys for the return portion of the belt of a width less than the distance between the rim portions thereof, substantially as set forth.

4. As a new article of manufacture, a conveying belt having a rope secured to its outer face near each side thereof, substantially as set forth.

3. As a new article of manufacture, a conveying belt having a rope secured to its outer face near each side thereof by means of lacings, substantially as set forth.

THIS SPECIFICATION SIGNED AND WITNESSED THIS 20th DAY OF October 1889

Thomas A. Edison

Witnesses:

1. J. F. Raudolph
2. Edwin E. Hagerty

Oath.

State of New Jersey } ss.:
County of Essex

THOMAS A. EDISON

, THE ABOVE-NAMED

PETITIONER, BEING DULY SWORN, DEPOSES AND SAYS THAT HE IS A citizen
OF THE United States and a resident of Llewellyn Park, in the
County of Essex and State of New Jersey;

THAT HE VERILY BELIEVES HIMSELF TO BE THE ORIGINAL, FIRST AND SOLE INVENTOR
OF THE IMPROVEMENT IN CONVEYING BELTS

DESCRIBED AND CLAIMED IN THE ANNEXED SPECIFICATION; THAT HE DOES NOT
KNOW AND DOES NOT BELIEVE THAT THE SAME WAS EVER KNOWN OR USED BEFORE
HIS INVENTION OR DISCOVERY THEREOF; OR PATENTED OR DESCRIBED IN ANY
PRINTED PUBLICATION IN THE UNITED STATES OF AMERICA OR ANY FOREIGN COUNTRY
BEFORE HIS INVENTION OR DISCOVERY THEREOF, OR MORE THAN TWO YEARS PRIOR
TO THIS APPLICATION; OR IN PUBLIC USE OR ON SALE IN THE UNITED STATES FOR
MORE THAN TWO YEARS PRIOR TO THIS APPLICATION, AND THAT NO APPLICATION
FOR FOREIGN PATENT HAS BEEN FILED BY HIM OR HIS LEGAL REPRESENTATIVES OR
ASSIGNS IN ANY FOREIGN COUNTRY.

Thomas A. Edison

SWORN TO AND SUBSCRIBED BEFORE ME THIS 20th DAY OF October 1889

(SEAL)

J. F. Raudolph
NOTARY PUBLIC for
New Jersey

Handwritten

Case 2310
1 Sheet

Fig. 1

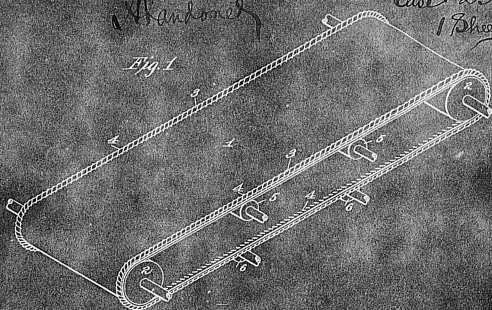


Fig. 2

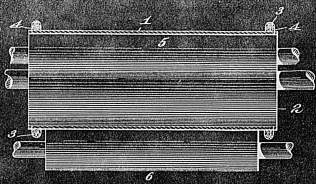


Fig. 3

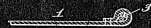


Fig. 4



Fig. 5



Witnesses:

James F. Coleman
Geo. R. Taylor

Inventor

Thomas A. Edison
By H. P. Edwards, Atty.

Att'ys.

2-020.

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

DEPARTMENT OF THE INTERIOR,

United States Patent Office,

Washington, D. C., Oct 25, 1899

{ Series of 1880.

No. 734695

SIR:

I have to acknowledge the receipt of the petition, specification, oath, and
drawing of your alleged improvement in

Conveying - Belt

with Fifteen Dollars as the first fee payable thereon.

The papers are duly filed, and your application for a patent will be
for examination in its order



You will be duly advised of the examination.

Very respectfully,

Care will be taken up for
examination in about one month.

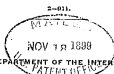
C. A. Duell
Commissioner of Patents.
J. A. Edison
To: Dyers Edmonde & Dyer
N.Y. City

Note.—In order to constitute an application for a patent, the inventor is by law required to furnish his petition, specification,
oath, and drawings (where the nature of the case admits of drawings) and to pay the required fee.
No application is considered as complete, nor can any official action be had thereon, until all its parts, as here specified, are
furnished in due form by the inventor or applicant.

Any communication respecting this application should give the serial number, date of filing, and title of invention.

When payment is made by check or draft, the receipt granted is subject to the collection of the same.

Room 255.
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."



All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
PATENT OFFICE,
UNITED STATES PATENT OFFICE,

WASHINGTON, D. C., Nov. 18, 1899.

T.A. Edison,
Care Dyer, Edmonds & Dyer,
31 Nassau St.,
New York, City, N.Y.



Please find below a communication from the *EXAMINER* in charge of your application.

for Conveying Belt, filed Oct. 25, 1899, #734,695.

C. H. Duell
Commissioner of Patents.

This application has been examined.

The claims are all rejected on Hardy, 315,141, April 7,
1885, (Driers, Endless Carriers;) Holland, 416,704, Dec. 3, 1889.
(Ore & Coal Washers;) Bowers, 575,142, Jan. 12, 1897, (same class;)
Dodge, 37,615, Feb. 10, 1863, (Conveyers, Endless, Belt;) Brennan,
396,136, Jan. 15, 1889, (same class); Ridgway, 632,750, Sept. 12,
1899, (same class,) or Braithmaite, 435,389, Sept. 1890, (Lawn
Mowers,) Grass Catchers.)

The state of the art as above disclosed would seem to
preclude the allowance of any claim on the subject-matter presented

THOMAS A. EDISON :
:
CONVEYING BELT :
: ROOM NO. 255.
FILED OCTOBER 25, 1899 :
:
SERIAL NO. 734,695 :

HON. COMMISSIONER OF PATENTS,

S I R :

We amend the above-entitled application as follows:-

Cancel figures 3, 4 and 5 of the drawing.

Page 2, lines 3 and 4, erase "and figures 3, 4 and 5 details of modifications".

Same page, beginning with "Instead", fourth line with bottom, erase through "thereof", line 10, page 3.

Cancel claims 1 and 2, and renumber the remaining claims.

The first claim covers applicant's suggestion of supporting a rimmed belt upon driving rollers which extend the width of the belt and upon intermediate rollers which are arranged between the rim portions. The second and third claims cover applicant's improved conveying belt provided with a rope to form rim portions secured on the outer face near each side. We submit that these claims are allowable.

In the patent to Hardy, the belt is provided at each edge with a rope solely for strengthening purposes, as is common in many arts, for instance in the manufacture of clothing. This patent does not show the shortened intermediate rollers.

The patent to Braithwaite shows a belt with a rope on the under side, which cannot, of course, form a rim, and this patent also fails to disclose the arrangement of sup-

porting and intermediate rollers claimed.

The patent to Ridgway shows a rubber belt lapped over upon a rope at either side, and not a belt provided with a rope on its outer face. This patent also fails to disclose the claimed arrangement of supporting and intermediate ropes.

The patent to Brennan, Jr., shows a conveyor formed of ropes with separate links strung upon them, and not a belt having a rope at each side on its outer face. The driving rollers of this patent extend the full width of the belt, and there are no intermediate rollers, as claimed.

The patent to Dodge fails to disclose the intermediate rollers and shows a belt having elastic rims, and not one with a rope on its outer face at each side.

The patent to Bowers shows no supporting or intermediate rollers, but discloses simply a rimmed belt, the edges of the rims being strengthened with ropes.

The patent to Holland shows a conveyor made of slats carried on top of supporting ropes, which is entirely different from the construction claimed.

It is hoped the case as now presented may, therefore, be allowed.

Respectfully,

THOMAS A. EDISON,

By _____

His Attorneys.

New York, November 5, 1900.

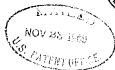
Room No. 255,
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

2-246.

All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

WASHINGTON, D. C., Nov. 23, 1900.



T. A. Edison,

Care Dyer, Edmonds & Dyer,

31 Nassau St.,

New York City.

Please find below a communication from the EXAMINER in charge of your application.

for Conveying-Belt, filed Oct. 25, 1899, Ser. No. 734,695.

C. H. Duell
Commissioner of Patents.

Claim 1 is rejected on Hack, 323,323, July 28, 1885, (Conveyers,
Belt,) Fig. 4, or St. Clair, 443,488, Dec. 23, 1890, (Conveyers, End-
less.)

Claims 2 and 3 are rejected on Hardy, of record. Nothing is said
in these two claims as to the purpose of the rope. However, in view
of the other references of record, the use of a rope as a substitute of
any other kind of a flange would not be patentable over the references.

The claims are all rejected.

In every application for a patent filed subsequent to December 31, 1897, responsive action must be made by the
inventor within one year after the date of filing of the application, or the case will become abandoned.

Case No. R-1015,

Dropped,

Filed October 25, 1899,

Improvements in Conveying Belts.

C l a i m s .

1. As a new article of manufacture, a conveying belt having rim portions at each side thereof, substantially as set forth.

2. In a conveying apparatus, the combination with the supporting pulleys mounted on horizontal axes, of a conveying belt carried by said supporting pulleys, and rim portions for said belt at each side thereof, substantially as set forth.

3. In a conveying apparatus, the combination with the supporting pulleys mounted on horizontal axes, of a conveying belt carried by said supporting pulleys, rim portions for said belt at each side thereof, intermediate supporting pulleys for the conveying portion of the belt of a width equal to that of the belt, and supporting pulleys for the return portion of the belt of a width less than the distance between the rim portions thereof, substantially as set forth.

4. As a new article of manufacture, a conveying belt having a rope secured to its outer face near each side thereof, substantially as set forth.

5. As a new article of manufacture, a conveying belt having a rope secured to its outer face near each side thereof by means of lacings, substantially as set forth.

No. 2316

E 1017

Serial No. 736350

Applicant.

Thomas A. Edison

Address.

Title Process and Apparatus for drying and reclaiming dyes and other matters in bulk.Filed November 9, 1899.Examiner's Room No. 261
243

Assignee

Ass'g't Exec.

Recorded

Liber

Page

Patent No.

Issued

ACTIONS.

1. Reported Dec. 19, 1899.2. Amended Dec. 30, 1899.3. Reported Jan. 29, 1900.4. Amended Feb. 21, 1900.5. Reported Feb. 24, 1900.

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

Handwritten notes:
 Look into from the Underwriting
 of April 16, 1900 saying
 & comment on same
 as a
 reference -

RICHARD N. DYER,

31 Nassau Street,
NEW YORK CITY.

The object of this invention is to economically & effectively dry ore & other crushed material.



The invention consists in crushing the wet or damp material passing it through a dryer thence over screens to remove the sizes desired then rebrushing the larger sizes ~~and~~ mixing them with the fresh wet ore & returning the whole to the dryer —

By continuously passing what is called in ore crushing plants "Returns" together with the fresh ore coming in the mill — The hot dry returns

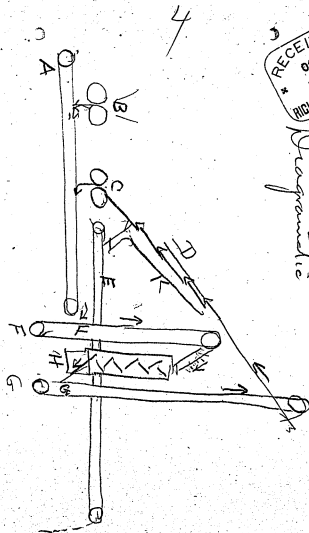
from the screens mixing with the wet ore intimately produces rapidly & economically a perfect drying and renders the use of a large dryer & high temperature unnecessary

J. E. —

Dyer

This has been in operation in Little Mill at N. G. Zins Co for 1 1/2 years, I had forgotten it — its most important improvement in my plants — E

1 3 1
 A is a conveying belt, B a
 pair rolls or roller Crushing
 machine A delivers coal
 on fan B to Elevator F
 This delivers to Dryer H,
 from bottom Dryer goes
 into Elev G delivers in
 Chute & thence to Screen
 D over two Coarses to go
 thro screens goes to recrush
 C - Right size ore goes
 to Conveying belt E



Diagrams

oct 22 1899
 JCH

LAW OFFICES
OF
DYER, EDMONDS & DYER,
SPECIALTY,
Patents and Patent Causes,
31 NASSAU ST., NEW YORK.

RICHARD N. DYER,
REGISTRATION NO. 421.
SAMUEL O. EDMONDS,
REGISTRATION NO. 40.
FRANK L. DYER,
REGISTRATION NO. 402.

Petition.

To the Commissioner of Patents:

YOUR PETITIONER THOMAS A. EDISON, a citizen of the United States, residing and having his post office address at Llewellyn Park, in the County of Essex and State of New Jersey,

PRAYS THAT LETTERS PATENT MAY BE GRANTED TO HIM FOR THE PROCESS AND APPARATUS FOR DRYING AND SCREENERING ORNS AND OTHER MATERIAL IN BULK

SET FORTH IN THE ANNEXED SPECIFICATION; AND HE HEREBY APPOINTS DYER, EDMONDS AND DYER (A FIRM COMPOSED OF RICHARD N. DYER, SAMUEL O. EDMONDS AND FRANK L. DYER), OF NO. 31 NASSAU STREET, NEW YORK CITY, HIS ATTORNEYS, WITH FULL POWER OF SUBSTITUTION AND REVOCATION, TO PROSECUTE THIS APPLICATION, TO MAKE ALTERATIONS AND AMENDMENTS THEREIN, TO RECEIVE THE PATENT, AND TO TRANSACT ALL BUSINESS IN THE PATENT OFFICE CONNECTED THEREWITH.

Thomas A. Edison

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the County of Essex and State of New Jersey, have invented a certain new and useful PROCESS AND APPARATUS FOR DRYING AND SCREENING ORES AND OTHER MATERIAL IN BULK (Case No. 1017), of which the following is a specification:-

My invention relates to an improved process by which wet or damp ore and other material in bulk may be effectively and economically dried and screened, (and to an improved apparatus for carrying the process into effect.) My process makes it possible for me to employ a relatively small dryer and to utilize comparatively low temperatures for effecting the drying.

My process consists in crushing the wet or damp ore or other bulk material, in passing the crushed material through a dryer by which it is dried, in then subjecting the dried, crushed material to a screening operation by which particles of sufficient fineness will be separated from the material and conducted to the point of use, in recrushing the tailings of the screen or screens, which tailings are known in the art as "returns", in mixing the recrushed, dry, hot returns with freshly crushed, wet material, and in passing the mixture again through the dryer, and so on. By adding the recrushed, dried, hot returns to the freshly crushed, wet or damp material, a part of the moisture will be driven out of the latter, and the proportion of moisture in the material passing through the dryer will be reduced, so that a relatively small dryer may be employed,

utilizing comparatively low temperatures for effecting the drying.

(My improved apparatus comprises two sets of crushing rolls, one set for crushing the wet or damp material in bulk and the other set for recrushing the dry, hot returns; a dryer to which, after the apparatus is in operation, the mixture of returns and freshly crushed, wet or damp material is passed; a screening device for screening the material after it has passed through the dryer; and proper conveyors and elevators for automatically directing the streams of material through the several devices constituting the apparatus.)

In order that my invention may be better understood, attention is directed to the accompanying drawing, showing the ^{one} improved apparatus in diagram, ^{for carrying the process in effect.}

1 represents a pair of crushing rolls or other crushing apparatus, provided with a hopper 2, into which the wet or damp ore or other material in bulk is delivered. This crushing apparatus is of any suitable type. 3 is a conveyor belt, located beneath the crushing apparatus 1 and receiving the crushed material therefrom. 4 is an elevator, into the boot of which the crushed material from the conveyor 3 is deposited. This elevator carries the crushed material upwards and deposits it in the hopper 5 of a dryer 6 of any suitable type. Preferably the dryer 6 is supplied with hot air from a furnace 7 and is provided on its interior with the inclined baffle-plates 8, by which the material will be caused to pass through the dryer in the shape of a plurality of flat, zig-zag streams. The crushed, dried material from the dryer 6 is deposited in the boot 9 of an elevator 10, and is conveyed by said elevator to a screening apparatus 11 of any suitable type. Preferably this screen-

ing apparatus comprises a plurality of screen sections 12, 12, and a series of checking surfaces 13, by means of which the material after it has passed over one screen section will be brought to rest before passing over the screen section next below. By thus passing the material more slowly over the screen sections, the screening operation is facilitated.

The fine material from the screens falls upon an incline 14 and is deposited on a conveyor 15, by which it is carried to the point of use. The tailings of the screens, which are in the form of dry, hot returns, are passed through a recrushing apparatus 16 of any suitable type and by which such tailings will be recrushed. The recrushed material from the recrushing apparatus 16 is deposited on the conveyor 3, so as to be intimately associated with the wet or damp material from the crushing apparatus 1.

The operation will be as follows:- The wet or damp ore or other material in bulk is supplied to the hopper 2 in the desired quantity and is crushed between the crushing rolls 1 or other crushing apparatus. The wet or damp, crushed material being deposited on the conveyor 3 will be elevated by the elevator 4 and pass through the dryer 6, by which it will be dried. From the dryer 6, the crushed, dry material will be elevated by the elevator 10 and pass through the screening apparatus 11. Sufficiently fine material will be carried off by the conveyor 15, but the coarse tailings or returns will be passed through the recrushing apparatus 16 and again deposited upon the conveyor 3. By thus adding the recrushed, dry, hot returns to the wet or damp material on the conveyor 3, a part of the moisture carried by the wet or damp material will be driven out and the proportion of moisture contained in the mixture passing

through the dryer 6 will be considerably reduced, so that a relatively small dryer may be used, utilizing comparatively low temperatures.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is as follows:-

1. The process of drying and screening wet or damp material in bulk, which consists in crushing the wet or damp material, in passing the crushed material through a dryer, in screening the dried, crushed material, in re-crushing the dry, hot tailings or returns from the screening apparatus, and in mixing the re-crushed, dry, hot returns with the crushed, wet or damp material, substantially as set forth.

2. The process of drying and screening wet or damp material in bulk, which consists in crushing the wet or damp material, in passing the crushed material through a dryer, in screening the dried, crushed material, in re-crushing the dry, hot tailings or returns from the screening apparatus, in mixing the re-crushed, dry, hot returns with the crushed, wet or damp material, and in passing the mixture again through the drying apparatus, substantially as set forth.

3. An apparatus for screening and drying wet or damp material in bulk, comprising in combination a crushing apparatus, a dryer to which the crushed, wet or damp material is directed, a screening apparatus for screening the dried, crushed material from the dryer, and means for re-crushing the tailings of said screening apparatus and for mixing the re-crushed tailings with the crushed, wet or damp material, substantially as set forth.

4. An apparatus for screening and drying wet or damp material in bulk, comprising in combination a crushing apparatus, a dryer to which the crushed, wet or damp mater-

ial is directed, a screening apparatus to which the dried, crushed material from the dryer is directed, a recrushing apparatus for recrushing the tailings of the screening apparatus, and means for mixing the recrushed, dry tailings with the crushed, wet or damp material, substantially as set forth.

5. An apparatus for screening and drying wet or damp material in bulk, comprising in combination a crushing apparatus, a dryer to which the crushed, wet or damp material is directed, a screening apparatus to which the dried, crushed material from the dryer is directed, a recrushing apparatus for recrushing the tailings of the screening apparatus, and a conveyor located beneath the crushing and recrushing apparatus and onto which the crushed and recrushed material is deposited, substantially as set forth.

THIS SPECIFICATION SIGNED AND WITNESSED THIS 28th DAY OF October 1889

Thomas A. Edison

Witnesses:

1.

J. F. Randolph

2.

J. C. Donald

Oath.

State of New Jersey } ss.:
County of Essex

THOMAS A. EDISON

, THE ABOVE-NAMED

PETITIONER, BEING DULY SWORN, DEPOSES AND SAYS THAT HE IS A citizen
OF THE United States and a resident of Llewellyn Park, in the
County of Essex and State of New Jersey;

THAT HE VERILY BELIEVES HIMSELF TO BE THE ORIGINAL, FIRST AND SOLE INVENTOR
OF THE PROCESS AND APPARATUS FOR DRYING AND SCREENING ORES
AND OTHER MATERIAL IN BULK

DESCRIBED AND CLAIMED IN THE ANNEXED SPECIFICATION; THAT HE DOES NOT
KNOW AND DOES NOT BELIEVE THAT THE SAME WAS EVER KNOWN OR USED BEFORE
HIS INVENTION OR DISCOVERY THEREOF; OR PATENTED OR DESCRIBED IN ANY
PRINTED PUBLICATION IN THE UNITED STATES OF AMERICA OR ANY FOREIGN COUNTRY
BEFORE HIS INVENTION OR DISCOVERY THEREOF, OR MORE THAN TWO YEARS PRIOR
TO THIS APPLICATION; OR IN PUBLIC USE OR ON SALE IN THE UNITED STATES FOR
MORE THAN TWO YEARS PRIOR TO THIS APPLICATION, AND THAT NO APPLICATION
FOR FOREIGN PATENT HAS BEEN FILED BY HIM OR HIS LEGAL REPRESENTATIVES OR
ASSIGNS IN ANY FOREIGN COUNTRY.

Thomas A. Edison

SWORN TO AND SUBSCRIBED BEFORE ME THIS 28 DAY OF October 1889

(SEAL)

J. F. Randolph
NOTARY PUBLIC.

New Jersey

2-020.

If communication should be addressed to
"The Commissioner of Patents,
Washington, D. C."

{ Series of 1880.

No. 726350

DEPARTMENT OF THE INTERIOR,

United States Patent Office,

Washington, D. C., Nov 9



SIR:

I have to acknowledge the receipt of the petition, specification, oath, and drawing of your alleged Improvement in

Process + Apparatus for Drying + Screening Ores + in Bulk

with Fifteen Dollars as the first fee payable thereon.

The papers are duly filed, and your application for a patent will be taken up for examination in its order

You will be duly advised of the examination.

Very respectfully,

Case will be taken up for examination in about six weeks.

C. H. Dwell

Commissioner of Patents.

J. A. Edison

To Messrs Edmonde + Dyer

31 Nassau St New York

NOTE.—In order to constitute an application for a patent, the inventor is by law required to furnish his petition, specification, oath, and drawings (where the nature of the case admits of drawings) and to pay the required fee.
No application is considered as complete, nor can any official action be had thereon, until all its parts, as here specified, are furnished in due form by the inventor or applicant.

Any communication respecting this application should give the serial number, date of filing, and title of invention.

NOTE.—If payment is made by check or draft, the credit granted is subject to the collection of the same.

2-571.

Room N243
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

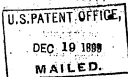
DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C.

All communications regarding this
application should give the serial number,
date of filing, and title of invention.



Dec. 20, 1899

THOMAS A. Edison,
Care Dyer, Edmonds & Dyer,
31 Nassau Street,
New York City, New York.



Please find below a communication from the EXAMINER in charge of your application.
#736,350, filed May. 9, 1899, for Process and Apparatus for
Drying and Screening Ores, &c., in Bulk.

C. H. Duell
Commissioner of Patents.

This case, having been taken up for examination, is found
to embrace two separate and independent inventions - one, a
process, covered in claims 1 and 2, and the other, an apparatus,
covered in claims 3, 4 and 5. In accordance with Rule 41, division
is required.

THOMAS A. EDISON

PROCESS AND APPARATUS FOR DRYING
AND SOFTENING ORBS &C.
IN BULK

ROOM NO. 243.

SERIAL NO. 736,350

FILED NOVEMBER 9, 1899

HON. COMMISSIONER OF PATENTS,

S I R :

Please amend as follows:-

Erase the words "AND APPARATUS" in the
title of the invention.

Page 1, line 5, erase the words "AND APPARATUS".
Same page, lines 10 and 11, erase the words ", and to an
improved apparatus for carrying the process into effect".

Page 2, beginning with "My", line 3, erase through
"apparatus", lines 11 and 12. Same page, line 15, erase
"the improved", and substitute -----an-----. Same line,
after "diagram" insert -----for carrying the process into
effect-----.

Insert at the end of the specification:--

-----I do not claim herein the improved drying apparatus
for carrying the process into effect, since such apparatus
is made the subject of a separate application for patent.---

Cancel claims 3, 4 and 5.

Action on the merits is now respectfully requested.

Respectfully,

Attorneys for Edison.

New York, December 30, 1899.

Room No. 261.
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

2-671.

All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

WASHINGTON, D. C., Jan. 29, 1900.

Thomas A. Edison,
C/o Dyer, Edmonds & Dyer,
31 Nassau St.,
New York, N. Y.



Please find below a communication from the *EXAMINER* in charge of your application.

Ser No 736,350, Filed Nov. 9, 1899, for "Process of Drying and
Screening."

C. H. Duell
Commissioner of Patents.

This application, as amended, has been taken up for examina-
tion.

The claims are rejected upon the patent to Cummer, No. 634,199
Oct. 3, 1899, in Driers, Cyl., Int., Rot., Inclined, and No. 634,
200, Oct. 3, 1899, in Driers -Processes.

Enter in Case 104

THOMAS A. EDISON

PROCESS OF DRYING AND SCREENING

FILED NOVEMBER 9, 1899

SERIAL NO. 736,350

ROOM NO. 261.

HONORABLE COMMISSIONER OF PATENTS,

S I R :-

Reconsideration of the claims is respectfully requested.

With applicant's invention the material is first crushed, then passed through a dryer, and finally screened, the screenings passing off to the point of use and the tailings being recrushed and mixed with fresh quantities of crushed wet or damp material. Both of the patents to Cummer of record relate particularly to apparatus and methods connected with the handling of garbage, and that apparatus is of such a character as to be practically limited only to the handling of comparatively soft and garbagematerial. With the Cummer patents the garbage is taken in its original form, passed through a dryer and screened, the screenings passing off for use, the tailings being disintegrated, and being finally again introduced into the dryer with fresh quantities of undried garbage.

The differences between the Cummer patents and applicant's invention may be thus stated:

First: In applicant's invention the material is first crushed, and the tailings from the screen are recrushed and mixed with the crushed wet or moist material. In the Cummer patents there is no equivalent of applicant's first step of crushing, since the garbage is introduced into the dryer in its original state.

Second: With applicant's process the recrushed dry hot returns from the screen are mixed with the crushed wet

or damp material before being repassed through the drying apparatus. In the Cummer patents the disintegrating screenings are only added to the fresh material at the dryer, and there will in consequence be a very imperfect mixture of the two.

Very respectfully,

Attorneys for Edison.

New York, February 21, 1900.

Room No. 261,
 If communications should be addressed to
 "The Commissioner of Patents,
 Washington, D. C."

All communications respecting this
 application should give the serial number,
 date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
 UNITED STATES PATENT OFFICE,

WASHINGTON, D. C., March 6, 1900.

T. A. Edison,
 C/o Dyer, Edmonds & Dyer,
 31 Nassau Street,
 New York, N. Y.



Please find below a communication from the **EXAMINER** in charge of your application.

Re No 736,350, Filed Nov. 9, 1899, for "Process of Drying Ores."

C. H. Duell
 Commissioner of Patents.

This application has been again examined, and as no reason is seen for modifying the previous action, the claims are finally rejected upon the references of record. The apparatus shown in the references is described as intended for use in disintegrating and drying lignite and gypsum as well as garbage.

WM. H. SHELVERDINE
PRESIDENT.
W. S. MALLORY
VICE-PRESY.
W. S. PULLING
TREASURER.
THERON J. CRANE
SECRETARY.
THOMAS A. EDISON
GEN'L. MANAGER.

The Edison Portland Cement Co.

GENERAL OFFICE:
GIRARD BUILDING, PHILADELPHIA, PA.

ORANGE TELEPHONE, "311 ORANGE."

Edison Laboratory, Orange, N. J.,

April 16th, 1900

Messrs. Dyer, Edmonds & Dyer,
31 Nassau Street,
New York City.



Gentlemen:--

Replying again to yours of February 21st, in reference to application Edison #1017, and Edison #1024, beg to state that we have further investigated the matter and find that Mr. Edison gave the New Jersey Zinc Co. instructions to arrange their plant so a portion of the dry material should be returned and mixed with the wet material, and go through the Dryer with it, but his instructions were not carried out, and the material only went through the Dryer once.

Yours very truly,

*Shaver & Co.
Members of
Pat. to Cannon etc*

Mallory

Case No. E-1017,

Filed Nov. 9, 1899. Dropped,

Process for Drying and Screening Ores and other Material
in Bulk.

C l a i m s.

1. The process of drying and screening wet or damp material in bulk, which consists in crushing the wet or damp material, in passing the crushed material through a dryer, in screening the dried, crushed material, in re-crushing the dry hot tailings or returns from the screening apparatus, and in mixing the recrushed, dry, hot returns with the crushed, wet or damp material, substantially as set forth.

2. The process of drying and screening wet or damp material in bulk, which consists in crushing the wet or damp material, in passing the crushed material through a dryer, in screening the dried, crushed material, in re-crushing the dry, hot tailings or returns from the screening apparatus, in mixing the recrushed, dry, hot returns with the crushed, wet or damp material, and in passing the mixture again through the drying apparatus, substantially as set forth.

3. An apparatus for screening and drying wet or damp material in bulk, comprising in combination a crushing apparatus, a dryer to which the crushed, wet or damp material is directed, a screening apparatus for screening the dried, crushed material from the dryer, and means for re-crushing the tailings of said screening apparatus and for mixing the recrushed tailings with the crushed, wet or damp material, substantially as set forth.

4. An apparatus for screening and drying wet or damp material in bulk, comprising in combination a crushing apparatus, a dryer to which the crushed, wet or damp material is directed, a screening apparatus to which the dried, crushed material from the dryer is directed, a recrushing apparatus for recrushing the tailings of the screening apparatus, and means for mixing the recrushed, dry tailings with the crushed, wet or damp material, substantially as set forth.

5. An apparatus for screening and drying wet or damp material in bulk, comprising in combination a crushing apparatus, a dryer to which the crushed, wet or damp material is directed, a screening apparatus to which the dried, crushed material from the dryer is directed, a recrushing apparatus for recrushing the tailings of the screening apparatus, and a conveyor located beneath the crushing and recrushing apparatus and onto which the crushed and recrushed material is deposited, substantially as set forth.

Dropped

*Case 2277
Sheet 1*

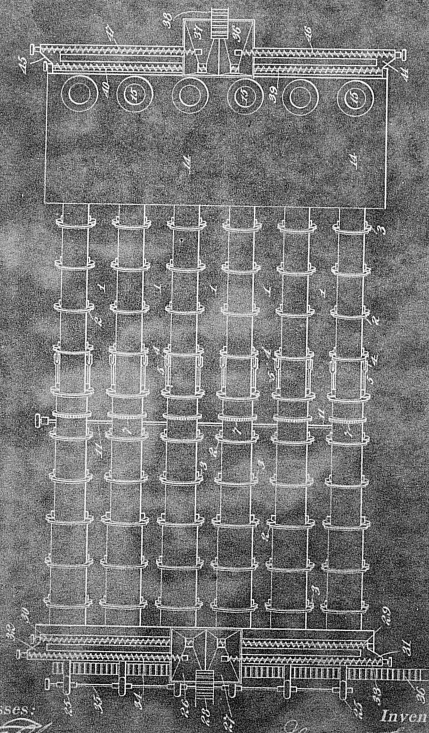


Fig. 1

Witnesses:

*James F. Coleman
Archibald S. Rice*

Inventor

*Thomas A. Edison
by J. P. Belmont att'y.*

Att'y's.

Dropped

*Case 2277
Edison's
Sketch*

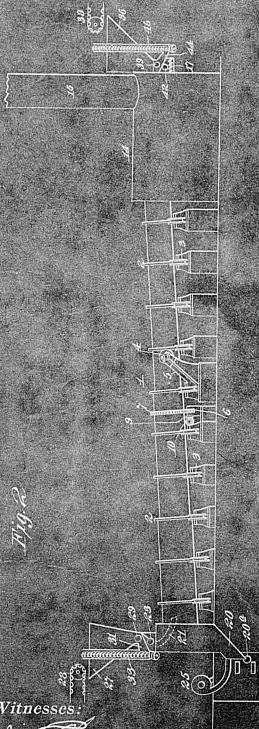


Fig. 2

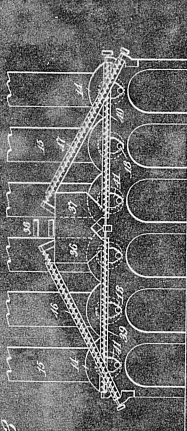


Fig. 3

Witnesses:

*Jac. F. Coleman
Fred. Hale & Co.*

Inventor

*Thomas A. Edison
by L. J. Edwards & Co.*

Att'ys.

Dropped

Case 2277
4 sheets
sheet 3

Fig. 4

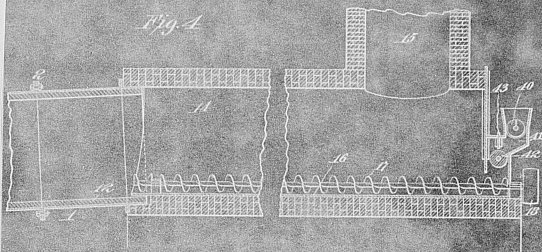
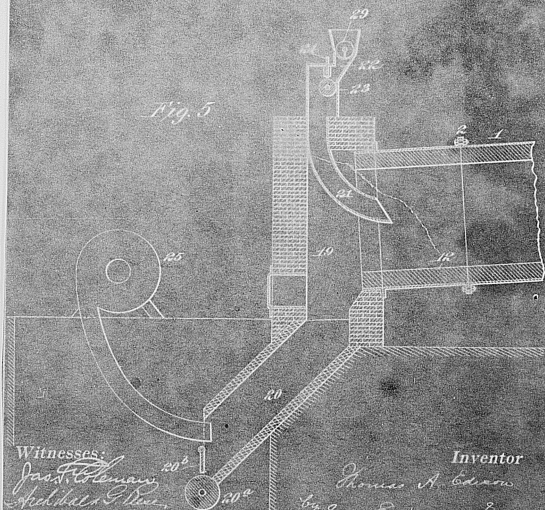


Fig. 5



Witnesses:

Jas. H. Coleman
Richard S. Lee

Inventor

Thomas A. Edison

by J. H. Coleman & Co.

Att'ys.

Dropped

Case 2297

4 sheets

Sheet 4

Fig 6

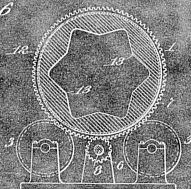


Fig 7

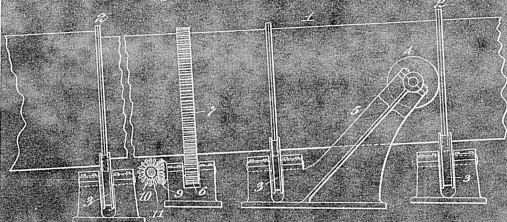
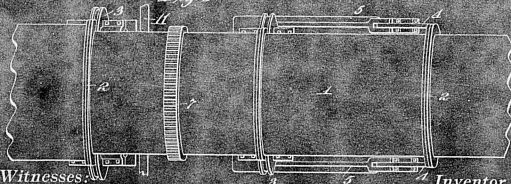


Fig 8



Witnesses:

Jacob Coleman
Witness

Inventor

Thomas A. Edison

By L. P. Coleman, Agent

Att'y.

No. 2333

E. 1022

Serial No. 523

Applicant,

Thomas A. Edison

Address.

Title

Inpt. in Process of Magnetic Separation

Filed

January 9, 1900Examiner's Room No. 243

Assignee

Ass'gt Exec.

Recorded

Liber

Page

Patent No.

Issued

ACTIONS.

- 1 Receipts Feb. 8, 1900 16
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- 4 19
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- 8 23
- 9 24
- 10 25
- 11 26
- 12 27
- 13 28
- 14 29
- 15 30
- Abandoned*
- Profr. G. L. D.*

RICHARD N. DYER,

31 Nassau Street,
NEW YORK CITY.

①

Edison Car 1022

The object of this invention is to separate magnetic material from nonmagnetic materials.



The invention consists in a ~~new~~ form of magnetic separator which by adjustment can be made to separate equally as well very magnetic material and also material having ~~some~~ extremely weak magnetic properties -

Fig 1 shows ^{one} ~~the~~ form of magnet employed in the separator. A the driving belt B B' bearings X the shaft G the core of magnet F E the poles of the magnet which serve to form a cylinder W the wire -

2

C C' the connecting ring insulated from the iron shaft & having smooth contact rings d d' contact brushes

W is the wire which is so proportioned to the run that the latter can be magnetized nearly to saturation - fig 2

Shows how the polar extensions are put in - The wire is previously wound as a bobbin & placed over the iron core of the heads screwed together -

3

after the magnet is assembled - a very thin strip of sheet brass is made to entirely inclose the whole of the magnetic cylinder - This brass sheet prevents the belt which runs over the magnetic pulley from being drawn inwards between the poles when it is loaded with magnetic materials -

4

fig 3 shows the separator arranged for operation I prefer to use more than one separator so that the Concentrate can be run two or more times through the same operation -

The operation is as follows The M_1 M_2 M_3 are the magnets of the 3 separators - In the case of very magnetic material - The speed

5 of the belt is very great
I prefer to have the belt
travel from 6 to 800 ft
or more per minute.
The Hopper B with roller
feed serves to feed the
magnetic material evenly
over the belt to nearly
the full width of
the face of the magnetic
pulley = the magnetism
of the latter is sufficient
to prevent ~~the~~ the magnetic
particles from being

6 thrown off the pulley by
centrifugal force while
the nonmagnetic particles
entangled in the magnetic
particles coalesce together
and are forcibly drawn out
by the powerful centrifugal
force acting upon them -
the speed of the belt is
adjusted that this centrifugal
power is great enough
to overcome the clogging
together of the magnetic
particles which tends to
prevent their being thrown

7 off - In ~~fact~~ ~~separators~~
of this general character
the disadvantage has not
been taken of the centrifugal
force hence the speeds
have been slow & the
quality of the magnetic
product has been poor
In practice not enough
magnetism is generated
to carry all the magnetic
particles completely around
the Drum - Then the action
of the under part of
the belt strips them away
& they fall in the hopper

8 below & are fed onto the belt
of the next separator ~~the~~
The object of the other 2
separators is to insure the
separation of every particle
of free non magnetic
matter a few particles
escaping the first machine
when the output is increased
by feeding a thick stream
If the material is ~~poor~~ very
weak in magnetism the
non magnetic particles
cannot be separated by
centrifugal action tho

9

Speed of the belt is reduced to 20 or 30 feet per minute and the dividing boards arranged as in fig 4 - The nonmagnetic particles drop vertically -

The ore in this case is not fed over the entire width of the belt covering the magnetic pulley but only over that portion of the belt which covers the gap between the poles

10

When the material is extremely weak magnetically like garnets specular iron ore etc - I prefer to construct the magnetic drum like fig 5 -

A A' are wooden extensions of the polar pieces - over the polar ~~extension~~ ^{extension} at the gap the gap is covered with thin sheet brass. The polar pieces + wood serve as a narrow pulley

11

over which a thin
Conveying belt runs; this
belt is preferably of an
uneven surface like
heavy Duck Canvas
to prevent the materials
being drawn to the edges
of the pales & thus clog.
The bottom of wire is first
wound separately &
then ~~put~~ put over core &
pale ends secured as
the pale ends as they
approach the core are made

12

thicker so the iron will not
become saturated except at
the pale ends.
The belt speed should be
from 20 to 50 feet per minute
& the feed the same with
as the pale edges X X
~~By first running the~~
~~wire around the first~~
by triplicate separators
& are running up the
concentrate two or more
times, a very perfect

13

Concentrate can be obtained from materials showing no magnetism at all with even quite strong magnets -

The output of the machines can be increased by adding more magnets & increasing the fields as the imperfect separations of one separator with a heavy load are subsequently corrected

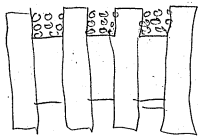
14

If it is desired to still further increase the amount passing through the machines, the tailings can be allowed to be ~~more~~ somewhat richer in magnetic material by moving the dividing board & these tailings run through another set or gang of separators.

15

The Magnetic drum - with poles
Extending over face to form
aperture with wire inside -

Note -



This kind of a separator has
been used but the defect
is that ~~not~~ ~~the~~ there is
not near enough room

16

in grooves to get ~~separate~~
turns enough to bring
the magnet anywhere
near saturation hence
its a very weak affair -
Whereas in the drum as I
show the space for wire
is so great that the
polar ends can be saturated
Especially in the 2nd
form shown -

17 also claim - the
process of separating
magnetic material by
counteracting centrifugal
force by magnetism on
magnetic material &
causing the pull of
centrifugal force on
non magnetic particles
to reach a point
sufficient to disengage
from & overcome the
magnetic clotted clog
of the non magnetic
magnetic

18 =
for instance if the magnetism
of the magnet is kept strong
& the belt speed slow
scarcely any any of the
non mag particles will
come out they are entangled
in the magnetic material
& held on the drum
if the speed is increased
the centrifugal pull
will be increased & many
not too strongly held
will be thrown off -
There is a point where

19
nearly all will be
thrown off the centrifugal
force far exceeding any
the force of the magnet.
Clogging - but this makes
the belt speed a little
too great hence is used
more than one separator.

This is a new idea in
operation & it works
~~very~~ perfect -

20
Reclaim the 2nd form of
magnet in details &
generally this magnet
gives the limit to magnetism.
It also works fine -

Claim the gang separator

Claim gang separator
for removing Concentrat
& gang for removing
tails etc = The
roughed belt -

Dec 8/99 Edison

fig 1



fig 1

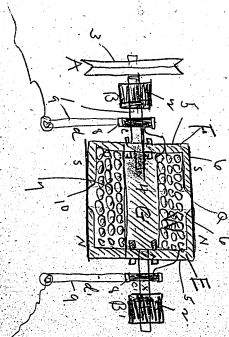
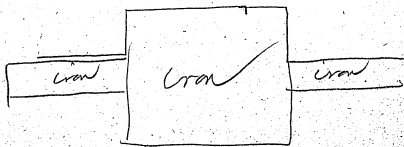
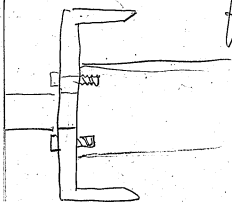
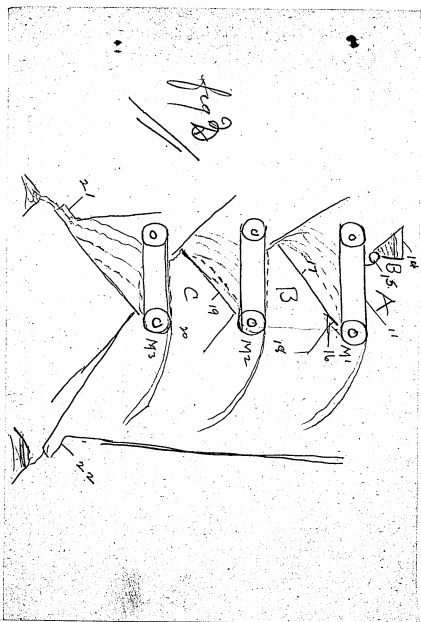


fig 2





LAW OFFICES
OF
DYER, EDMONDS & DYER.
SPECIALTY:
Patents and Patent Causes,
31 NASSAU ST., NEW YORK.

RICHARD N. DYER,
REGISTRATION NO. 428.
SAMUEL O. EDMONDS,
REGISTRATION NO. 41.
FRANK L. DYER,
REGISTRATION NO. 424.

Petition.

To the Commissioner of Patents:

YOUR PETITIONER, THOMAS A. EDISON, a citizen of the United States, residing and having his post office address at Llewellyn Park, in the County of Essex and State of New Jersey,

PRAYS THAT LETTERS PATENT MAY BE GRANTED TO HIM FOR THE IMPROVEMENT IN
PROCESS OF MAGNETIC SEPARATION

SET FORTH IN THE ANNEXED SPECIFICATION; AND HE HEREBY APPOINTS DYER, EDMONDS AND DYER (A FIRM COMPOSED OF RICHARD N. DYER, SAMUEL O. EDMONDS AND FRANK L. DYER), OF NO. 31 NASSAU STREET, NEW YORK CITY, HIS ATTORNEYS, WITH FULL POWER OF SUBSTITUTION AND REVOCATION, TO PROSECUTE THIS APPLICATION, TO MAKE ALTERATIONS AND AMENDMENTS THEREIN, TO RECEIVE THE PATENT, AND TO TRANSACT ALL BUSINESS IN THE PATENT OFFICE CONNECTED THEREWITH.

THOMAS A. EDISON

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the County of Essex and State of New Jersey, have invented a certain new and useful IMPROVEMENT IN PROCESS OF MAGNETIC SEPARATION (case No. 1022), of which the following is a description:

In an application filed on even date herewith I describe certain improvements in magnetic separators comprising a rotating magnet, the poles of which are arranged adjacent to each other to form a relatively narrow gap between them, the whole constituting a pulley around which is passed an endless belt, and to the said belt is fed the mixed magnetic and non-magnetic particles. In my said application I describe specifically how the apparatus is intended to work in connection with materials which are extremely weak magnetically, such as garnets and specular iron ore, the magnetic and non-magnetic particles being fed to the belt substantially in line with the gap between the polar faces, whereby the magnetic particles will be tenaciously attracted to the belt and will be carried down around the magnet and thence away from the vertical diameter, where they drop off, while the non-magnetic particles immediately drop off of the belt as it approaches and recedes from a vertical direction.

My present invention relates to an improved process by which a magnetic separator of the general type described in my said application can be very effectively utilized for the separation and concentration of particles which, compared to garnets and specular iron ore, are relatively magnetic, such as magnetite, and I have modified said apparatus in specific respects to fit it more perfectly to the carry-

ing on of the improved process.

One of the difficulties in magnetic separation is that non-magnetic particles become entangled with the magnetic particles and are carried through the apparatus, and a common expedient at the present time in use in the art is to subject the magnetic and non-magnetic particles to more or less agitation during the separate operations so as to prevent the entrainment or entanglement of the non-magnetic particles with the magnetic particles. I find that with an apparatus of the general type referred to, when operated at a sufficiently high speed as to result in the generation of considerable centrifugal force, the non-magnetic particles will not only be thrown off of the belt as it passes around the magnet, but such particles will be actually disentangled from the magnetic particles, due to the effect of the magnetic force, and thrown off so as to be effectively separated. When an apparatus of this general type is used with materials which are extremely weak magnetically, it is desirable, as I describe in my said application, that the materials should be fed to the belt only in lines substantially coincident with the gap between the polar faces in order that such materials may be subjected to lines of intense magnetic force. When, however, my improved process is carried out, utilizing centrifugal force to facilitate the separating operation, it is not necessary to get such a concentrated magnetic field, and hence it becomes possible to modify the apparatus to the extent of using very much larger polar faces, which as a whole may be nearly magnetically saturated.

An apparatus intended for the carrying on of my improved process may therefore be formed of a core to which power is applied, two disks carried by the ends of said core, and overhanging rims carried by said disks and enclos-

1

ing the magnetizing coil, the whole magnet being therefore essentially cylindrical in form and carrying the feed belt for the entire width of the polar faces. Since the ampere turns of the coil will be so proportioned to the mass of the metal in the magnet as to result in the polar faces being nearly magnetically saturated, it becomes possible, with an apparatus utilizing my present process, to feed to the belt material throughout substantially the entire width of the belt, whereby the rapidity of operation of the apparatus will be very greatly increased in addition to the increase which results from the higher speed at which the belt is driven.

In order that the invention may be better understood, attention is directed to the accompanying drawings forming a part of this specification, and in which figure 1 represents a plan of my improved apparatus; figure 2 an enlarged section of the magnet; and figure 3 a diagram showing a series of the separators working in bank.

In all of the above views, corresponding parts are represented by the same numerals of reference.

1 represents a shaft, which is mounted in bearings 2, 2, and which may be driven in any suitable way, as for example from a pulley 3. The shaft 1 is provided with a cylindrical enlargement at its center constituting the core of the magnet. The poles of the magnet comprise the two disks 5, 5, which are bolted to the core as shown, and having the overhanging rims 6, 6, the free edges of which are adjacent to each other so as to form a gap between them. The coil 7 is wound on the core within the magnet, as shown, and is supplied with current through insulated collecting rings 8, 8 and brushes 9, 9. Preferably the polar faces 6, 6 are entirely enclosed in a thin sheet of non-magnetic metal, such as brass, 10, whereby the magnet will present a continuous operating face to the feed belt 11, which is made

of any suitable material. This belt extends over a pulley 12 carried on a shaft 13. The ampere turns in the coil 7 are so proportioned relatively to the mass of the magnetic poles as to result in the polar extremities 6, 6 thereof being ^{nearly} magnetically saturated. Material is fed to the belt 11 in any suitable way, as for instance from a hopper 14 having a roller feed 15. Mounted below the magnet is a suitable deflecting board 16, which may be actually located behind the vertical center of the magnet. Preferably a plurality of the separators are used, one above the other as shown in figure 3, the concentrates from the first separator passing by means of a chute 17 to a second separator 18, while the concentrates of this second separator pass by means of the chute 19 to a third separator 20. The final concentrates issue from the apparatus through a draw-off spout 21, while the non-magnetic particles are carried out of the apparatus through a spout 22.

The operation will be as follows: Power is applied to the shaft 1 to rotate the magnet and drive the belt 11 of each separator, and the mixed magnetic and non-magnetic particles are fed to the belt of the first separator, as for instance through the roller feed 15. The feed of the material to the belt may occupy substantially the entire width of the belt, since the entire polar faces of the magnet are, as stated, preferably magnetically saturated. The speed at which the belt is driven is very high, ranging generally from between six hundred and eight hundred feet or more per minute, but this speed should be so proportioned to the magnetic attraction of the magnet, to the magnetic affinity of the magnetic materials, and to the diameter of the magnet as not to result in the generation of a greater centrifugal force than is necessary to throw off the non-magnetic particles from the belt as it passes around the magnet. By

thus driving the belt at a relatively high speed, the non-magnetic particles will be thrown off therefrom in front of the deflecting board 16 by the centrifugal force which is developed, while the magnetic particles will be caused to tenaciously adhere to the belt by the magnetic attraction, and will be gradually carried by the belt away from the lines of magnetic force as the particles pass beyond the vertical diameter of the magnet until they finally drop off. By thus utilizing in a magnetic separator the effect of centrifugal force, and by so proportioning the centrifugal force that it tends to positively throw off of the belt all non-magnetic particles without, however, affecting the magnetic particles, I secure a very perfect and rapid separation; in fact, the effect of the centrifugal action in the apparatus is sufficient to cause non-magnetic particles which would otherwise be entangled and entrained with the magnetic particles and carried through the apparatus, to be actually disentangled therefrom and to be thrown out by the centrifugal force. I consider it preferable to use a plurality of these separators, because by doing so the speed of separation can be increased by feeding to the first separator magnetic and non-magnetic materials in large quantities, and in correcting imperfections in the first separation by the subsequent separators, it being obvious that any non-magnetic particles which may have passed through the first separator will have further opportunity in the second and final separators of being disentangled and removed from the magnetic particles.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is as follows:

1. The improved process of separating magnetic from non-magnetic particles, which consists in bringing the

mixed particles in a field of magnetic attraction, in changing the direction of movement of such particles so as to result in the generation of centrifugal force which throws out the non-magnetic particles, and in withdrawing the magnetic particles from the magnetic attraction, substantially as set forth.

2. The improved process of separating magnetic from non-magnetic particles, which consists in feeding the mixed magnetic and non-magnetic particles to a rotating field of magnetic attraction, the speed of rotation thereof being sufficient to result in the generation of centrifugal force to throw out the non-magnetic particles, and in positively withdrawing the magnetic particles so separated from the rotating magnetic field, substantially as set forth.

3. The improved process of separating magnetic from non-magnetic materials, which consists in subjecting the mixed material to the joint action of magnetism and centrifugal force, substantially as set forth.

THIS SPECIFICATION SIGNED AND WITNESSED THIS 3rd DAY OF January 1890.

THOMAS A. EDISON.

Witnesses:

1. W. S. MALTORY
2. J. F. RANDOLPH

Oath.

State of New Jersey
County of Essex

} ss.:

THOMAS A. EDISON. THE ABOVE-NAMED

PETITIONER, BEING DULY SWORN, DEPOSES AND SAYS THAT HE IS A citizen
OF THE United States, and a resident of Llewellyn Park, in the
County of Essex and State of New Jersey;

THAT HE VERILY BELIEVES HIMSELF TO BE THE ORIGINAL, FIRST AND SOLE INVENTOR
OF THE IMPROVEMENT IN PROCESS OF MAGNETIC SEPARATION

DESCRIBED AND CLAIMED IN THE ANNEXED SPECIFICATION; THAT HE DOES NOT
KNOW AND DOES NOT BELIEVE THAT THE SAME WAS EVER KNOWN OR USED BEFORE
HIS INVENTION OR DISCOVERY THEREOF; OR PATENTED OR DESCRIBED IN ANY
PRINTED PUBLICATION IN THE UNITED STATES OF AMERICA OR ANY FOREIGN COUNTRY
BEFORE HIS INVENTION OR DISCOVERY THEREOF, OR MORE THAN TWO YEARS PRIOR
TO THIS APPLICATION; OR IN PUBLIC USE OR ON SALE IN THE UNITED STATES FOR
MORE THAN TWO YEARS PRIOR TO THIS APPLICATION, AND THAT NO APPLICATION
FOR FOREIGN PATENT HAS BEEN FILED BY HIM OR HIS LEGAL REPRESENTATIVES OR
ASSIGNS IN ANY FOREIGN COUNTRY.

THOMAS A. EDISON

SWORN TO AND SUBSCRIBED BEFORE ME THIS 3rd DAY OF January 1890.

(SEAL)

J. F. RANDOLPH

NOTARY PUBLIC, for
New Jersey.

2-161.

#1022.

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

SERIES OF 1900.
No. 823.

DEPARTMENT OF THE INTERIOR,

United States Patent Office

Washington, D. C.,

Jan. 9



SIR:

I have to acknowledge the receipt of the petition, specification, oath, and drawing of your alleged improvement in

Process of Magnetic Separation.

with Fifteen Dollars as the first fee payable thereon.

The papers are duly filed, and your application for a patent will be taken up for examination in its order.

The drawing is informal, but has been admitted for purposes of examination.

Part in section should be section bond.

You will be duly advised of the examination.

Very respectfully,

Case will be taken up for examination in about one month.

C. H. Duell
Commissioner of Patents.

J. A. Edison

J. A. Dyer, Edmonds & Dyer.

N.Y. City

NOTE.—In order to constitute an application for a patent, the inventor is by law required to furnish his petition, specification, oath, and drawings (where the nature of the case admits of drawings) and to pay the required fee.
No application is considered as complete, nor can any official action be had thereon, until all the parts, as here specified, are furnished in due form by the inventor or applicant.

Any communication respecting this application should give the serial number, date of filing, and title of invention.

If payment is made by check or draft, the credit granted is subject to the collection of the same.

2-311.
Room No. 245
The Commissioner of Patents,
Washington, D. C.

256
All communications respecting this application should give the serial number, date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
WASHINGTON, D. C.

Feb. 8, 1900.

Thomas A. Edison,
Care Dyer, Edmonds & Dyer,
No. 31 Nassau Street,
New York City, New York.

U.S. PATENT OFFICE,
FEB 8 1900
MAILED.

Please find below a communication from the EXAMINER in charge of your application.

#923, filed Jan. 9, 1900, for Process of Magnetic Separation.

C. H. Dyer,
Commissioner of Patents.

RECEIVED
FEB 8 1900
DYER, EDMONDS & DYER.

Applicant's drawing has been criticised by the Chief Draftsman as follows:- "Informal; parts in section should be section lined. Admit for examination only." Should the case finally be found otherwise allowable, the drawing must be relieved of objections before the case can pass to issue. Applicant is required to eliminate "Case No. 1022" from the specification to the disclosure of which it adds nothing. The serial number and date of the application referred to in the second paragraph, page 1, are required to be inserted.

Each of the claims is recited as squarely met in the following patents: ^{marked} 348,771, Payne, Sept. 7th, 1886; 463,505, Hoffman, Nov. 17th, 1891; and 548,176, Buchanan, Oct. 22d, 1895--Magnetic Separators.

RULE 73. In every amendment the exact word or words to be stricken out or inserted in the application must be specified and the precise points indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper.

Case No. E-1022,

Abandoned,

Filed January 9, 1900,

Improvements in Process of Magnetic Separation.

C l a i m s .

1. The improved process of separating magnetic from non-magnetic particles which consists in bringing the mixed particles in a field of magnetic attraction, in changing the direction of movement of such particles so as to result in the generation of centrifugal force which throws out the non-magnetic particles, and in withdrawing the magnetic particles from the magnetic attraction, substantially as set forth.

2. The improved process of separating magnetic from non-magnetic particles, which consists in feeding the mixed magnetic and non-magnetic particles to a rotating field of magnetic attraction, the speed of rotation thereof being sufficient to result in the generation of centrifugal force to throw out the non-magnetic particles, and in positively withdrawing the magnetic particles so separated from the rotating magnetic field, substantially as set forth.

3. The improved process of separating magnetic from non-magnetic materials, which consists in subjecting the mixed material to the joint action of magnetism and centrifugal force, substantially as set forth.

①

The object of this invention is to sample and mix ores having a variable assay into a body of ore or rock having a known & even assay so that the further addition of any necessary ingredient in a subsequent operation upon the ore or rock can be made exactly to produce an even product or result. The invention is especially designed for mixing silicious limestones used in making Portland Cement. It is well known that the silicious limestones used for manufacturing Portland Cement by the dry process is a

RECEIVED
BY DEPT.
#1183
RICHARD H. DITZ

2. Natural product of exceedingly variable character as regards the amount of the various ingredients consisting of lime, alumina, iron, magnesia, silica, etc. - that in the same quarry the rock will vary in its chemical constituents several percent in a few feet. Thus this rock is always deficient in lime to make a perfect Portland Cement. The practice is to ~~mix~~ mix a certain percent of limestone with it to obtain the right mixture - & it is the practice to mix several barrows of cement rock with one barrow of lime to effect this - In effecting the mixture in this way the result

3. are very inconstant & the quality of the Cement varies considerably & being of course impossible to assay each barrow of Cement rock in a large works.

The object of this invention is to conveniently & practically effect the object of making a perfect mixture of Cement rock of known composition ~~which~~ so that the addition of lime will produce a mixture giving a Portland Cement of constant quality independent of the variations of the rock in the Quarry.

The invention consists in employing a large stock house at the end of the crushing

4. Works ~~from~~ which the rock passes to a Dryer & thence to the stock house

and forming a number of piles of Cement rock & Limestone separated from each other & so delivering the Cement rock or Limestone to the piles that the cones formed shall so mixed in while being formed that when drawn out from under the stock house at many points under the cone, portions of the ore first put in shall be mixed with portions last put in - The ore or rock as it

5. goes into the stock house is continuously sampled by an automatic sampler arranged between the belt from the Dryer & the belt passing over the top of the stock house - The sampler takes a one pound sample every minute ~~of~~ during the formation of the Cone of rock in the stock house. The size of the Cone of ore should be such that it shall be the product of at least one day crushing of the Crushing plant to permit one day being given the chemist to make a careful assay of the samples taken

6. by the sampler which when obtained will represent the assay of the whole cone but without the Cone is thoroughly mixed when drawn off to another department of the works for mixing with the lime the assay will run uneven because of the first part of the day the Crushing plant delivers ore high in Silica while in the afternoon it delivers ore low in Silica & these two quantities were not thoroughly mixed in the Cone, on drawing out the other department might

7 get High silica rock at one
time & low silica rock
at another time whereas
the Cone as a whole would
have a definite assay
Hence it is essential not
only to know the actual
assay of the whole cone
but that it shall be
drawn ~~out~~ out of the
stock house so mixed that
all that comes out
shall have the exact
assay of the sampler assay
to do this I provide

8
a spout on one side of the
cone ~~and~~ this spout have
several apertures in its bottom
& is also open at its lower
end. These apertures are
controlled by rods extending
up along the spout to the
top of the stock house
where the belt delivers to
the spout <sup>these apertures are controlled by the main
belt chain</sup> I have illustrated
but a single cone & spout
in fig ² fig 1. The lower end of
the spout is first opened the
cone formed by this spout is
shown by the hair lines when
the ore gets up to the spout &
closed it. The 2 aperture is opened
& so on until the cone is
formed

9.

Underneath the cone are several spouts provided with roller feeds which can be adjusted to feed from the cone onto the conveying belt various amounts of ore until nearly all the ore of the cone is fed out, what remains is left there permanently as it will not mix with any rock of which subsequent cones are formed -

By thus delivering the ore to form the cone in this manner instead of forming it in the usual

10.

Manner of one spout at the top the rock is spread in the cone so the roller feeds give an ore as a whole fairly agreeing with the general assay of the sampler but still not near enough to produce a perfect cement,

to attain this a further mixing is essential & I accomplish this by employing a double conveying system both on top & underneath the stock house -

11

one conveying system serves to take ore from the dryer & deliver it to any one of several piles or Cones while the corresponding belt under the stock house draws off any cone & conveys it to the next department of the mill -

The other conveying system is used purely for mixing. The operation is as follows after a cone has been made sampled & assayed - It is

12

fed out through the various roller feeds into the mixing Conveying belt underneath after leaving the stock house it ~~then~~ proceeds up an angle where it meets the belt going to the top of the stock house it dumps on this & is then carried to a clear part of the stock house & dumped to form a new cone when this cone is drawn off to the next department the mixing is so perfect that the ~~sample~~ ^{same} assay as that of the

13. Sampler —

In the same stock house are also Lime rock Cones. The Crushing plant sometimes running for a day on Limestone & two or 3 days on Cement rock. The same mixing action takes place with the Limestone as with the Cement rock — but the Lime & Cement rock Cones are kept separate,

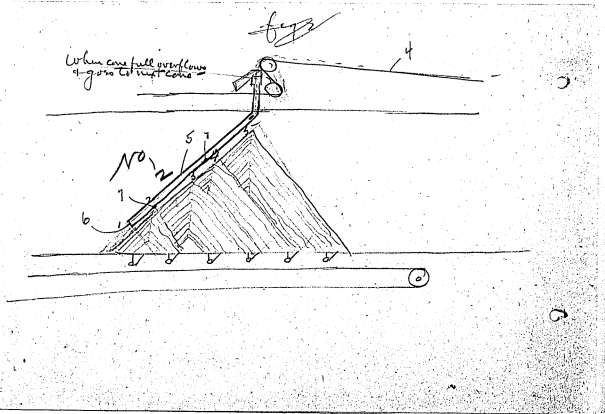
14. Having thus got both Lime & Cement rock in large quantities & of exact & known Chemical Composition all that is necessary to effect mixture of the two to give a resultant which will burn to perfect Portland Cement,

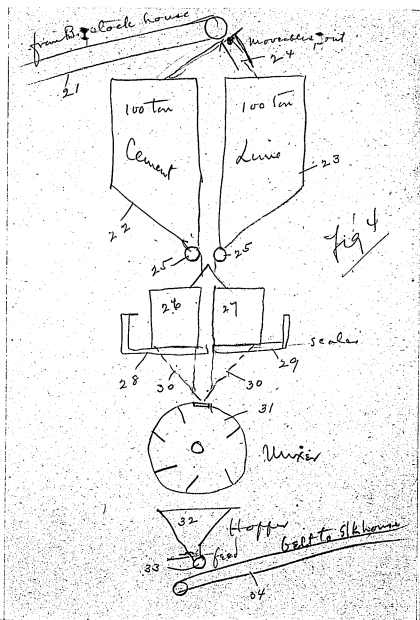
In another part of the factory I provide two large storage tanks holding about 100 tons each. I draw from the stock house & fill one with

15

Cement-rack the other
with Limestone, under
these tanks are two smaller
tanks placed on scales.
The attendant fills one
tank with cement-rack &
weighs it, having ascertained
the weight, the percent of
Limestone necessary is known
from the sampler as a
part of both & the requisite
amount of Lime is drawn
into the 2nd tank &
ascertained by weight.
The Content of both tanks

16 - are then emptied into a
rotary mixer which after
a few revolutions to effect
perfect mixing is dumped
into a hopper from which
through a roller feed it
goes to a conveyor & thence
to a stockhouse from
which the mill is continuously
drawing -





2 or more belts at
20° ^{or thereabouts} or less to replace
elevators - Is this
patentable? Side chute
to carry from one belt
to the other -

Doesn't want to be
confined to ^{conical} shape of
pile - may use piles
of other shape - May ~~be~~
~~whisker~~ distribute into
vertical bins ^{one for each roller feed} must be so
that stuff at all stages
can be drawn off at
same time

~~But~~ With bins ^{layers} need not
be inclined

Claim interposing mixer
between weighing neck & delivery -
Mixes limestone as well as
cement rock

Claim multiple shafts for purpose
of taking from different portions
of pile simultaneously -

LAW OFFICES
OF
DYER, EDMONDS & DYER,
SPECIALTY
Patents and Patent Causes,
31 NASSAU ST., NEW YORK.

RICHARD N. DYER,
REGISTRATION NO. 408.
SAMUEL O. EDMONDS,
REGISTRATION NO. 411.
FRANK L. DYER,
REGISTRATION NO. 448.

Petition.

To the Commissioner of Patents:

YOUR PETITIONER, THOMAS A. EDISON, a citizen of the United States, residing and having his post office address at Llewellyn Park, in the County of Essex and State of New Jersey,

PRAYS THAT LETTERS PATENT MAY BE GRANTED TO HIM FOR THE IMPROVEMENT IN
MAGNETIC SEPARATORS

SET FORTH IN THE ANNEXED SPECIFICATION; AND HE HEREBY APPOINTS DYER, EDMONDS AND DYER (A FIRM COMPOSED OF RICHARD N. DYER, SAMUEL O. EDMONDS AND FRANK L. DYER), OF NO. 31 NASSAU STREET, NEW YORK CITY, HIS ATTORNEYS, WITH FULL POWER OF SUBSTITUTION AND REVOCATION, TO PROSECUTE THIS APPLICATION, TO MAKE ALTERATIONS AND AMENDMENTS THEREIN, TO RECEIVE THE PATENT, AND TO TRANSACT ALL BUSINESS IN THE PATENT OFFICE CONNECTED THEREWITH.

THOMAS A. EDISON.

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the County of Essex and State of New Jersey, have invented a certain new and useful IMPROVEMENT IN MAGNETIC SEPARATORS (Case No. 1023), of which the following is a description:

In my application case No. 1022 filed on even date herewith, I have described an improved process of magnetic separation consisting in bringing the mixed magnetic and non-magnetic particles into a field of magnetic attraction, in changing the direction of movement of such particles so as to result in the generation of centrifugal force which throws out the non-magnetic particles, and in withdrawing the magnetic particles from the magnetic attraction. The object of my present invention is to provide an improved apparatus for the carrying out of such a process.

In order that the invention may be better understood, attention is directed to the accompanying drawings forming a part of this specification, and in which figure 1 represents a plan of my improved apparatus; figure 2 an enlarged section of the magnet; figure 3 a diagram showing a series of the separators working in bank; figure 4 a longitudinal section of a modification; and figure 5 a section on the line 5-5 of figure 4.

In all of the above views, corresponding parts are represented by the same numerals of reference.

1 represents a shaft, which is mounted in bearings 2, 2, and which may be driven in any suitable way, as for example from a pulley 3. The shaft 1 is provided with a cylindrical enlargement at its center constituting the core of the magnet. The poles of the magnet comprise the two disks 5, 5, which are bolted to the core as shown, and hav-

ing the overhanging rims 6, 6, the free edges of which are adjacent to each other so as to form a gap between them. The coil 7 is wound on the core within the magnet, as shown, and is supplied with current through insulated collecting rings 8, 8 and brushes 9, 9. Preferably the polar faces 6, 6 are entirely enclosed in a thin sheet of non-magnetic metal, such as brass, 10, whereby the magnet will present a continuous operating face to the feed belt 11, which is made of any suitable material. This belt extends over a pulley 12 carried on a shaft 13. The ampere turns in the coil 7 are so proportioned relatively to the mass of the magnetic poles as to result in the polar extremities 6, 6 thereof being nearly magnetically saturated. Material is fed to the belt 11 in any suitable way, as for instance from a hopper 14 having a roller feed 15. Mounted below the magnet is a suitable deflecting board 16, which may be actually located behind the vertical center of the magnet. Preferably a plurality of the separators are used, one above the other as shown in figure 3, the concentrates from the first separator passing by means of a chute 17 to a second separator 18, while the concentrates of this second separator pass by means of the chute 19 to a third separator 20. The final concentrates issue from the apparatus through a draw-off spout 21, while the non-magnetic particles are carried out of the apparatus through a spout 22.

The operation will be as follows: Power is applied to the shaft 1 to rotate the magnet and drive the belt 11 of each separator, and the mixed magnetic and non-magnetic particles are fed to the belt of the first separator, as for instance through the roller feed 15. The feed of the material to the belt may occupy substantially the entire width of the belt, since the entire polar faces of the magnet are, as stated, preferably ^{nearly} magnetically saturated. The speed at

which the belt is driven is very high, ranging generally from between six hundred and eight hundred feet or more per minute, but this speed should be so proportioned to the magnetic attraction of the magnet, to the magnetic affinity of the magnetic materials, and to the diameter of the magnet as not to result in the generation of a greater centrifugal force than is necessary to throw off the non-magnetic particles from the belt as it passes around the magnet. By thus driving the belt at a relatively high speed, the non-magnetic particles will be thrown off therefrom in front of the deflecting board 16 by the centrifugal force which is developed, while the magnetic particles will be caused to tenaciously adhere to the belt by the magnetic attraction, and will be gradually carried by the belt away from the lines of magnetic force as the particles pass beyond the vertical diameter of the magnet until they finally drop off. By thus utilizing in a magnetic separator the effect of centrifugal force, and by so proportioning the centrifugal force that it tends to positively throw off of the belt all non-magnetic particles without, however, affecting the magnetic particles, I secure a very perfect and rapid separation; in fact, the effect of the centrifugal action in the apparatus is sufficient to cause non-magnetic particles which would otherwise be entangled and entrained with the magnetic particles and carried through the apparatus, to be actually disentangled therefrom and to be thrown out by the centrifugal force. I consider it preferable to use a plurality of these separators, because by doing so the speed of separation can be increased by feeding to the first separator magnetic and non-magnetic materials in large quantities, and in correcting imperfections in the first separation by the subsequent separators, it being obvious that any non-magnetic particles which may have passed through the

first separator will have further opportunity in the second and final separators of being disentangled and removed from the magnetic particles.

While I prefer to employ an apparatus using a rotating magnet around the polar faces of which the feed-belt passes directly, since such a construction is very simple and effective, yet it will be understood that the apparatus may be modified without departing from the scope of the invention. For example, the circular magnet may be held from rotation and may be provided with a rotatable shell working very close to the polar faces, and with which shell the belt may engage, as shown in figures 4 and 5. With this modification, a stationary shaft 23 carries a coil 24 which is surrounded by the two poles 25, 25. Mounted with respect to the stationary magnet thus formed, is a shell 26, which works very close to the polar faces, said shell being as thin as possible. This shell may turn upon the stationary shaft 23 and may be driven in any suitable way, as, for example, from a pulley 27. In order that the magnetic particles may be moved by the feed-belt 11 with respect to the stationary magnetic field which will be formed in the modified construction, said belt may be provided with transverse cleats 28, which effect a positive movement of the magnetic particles with respect to the field. With this modification, it will be observed that the centrifugal force will result in the separation of the non-magnetic particles, while the magnetic particles will adhere tenaciously to the belt in their movement with respect to the field.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is as follows:-

1. An improved magnetic separator comprising a feed device movable with respect to a fixed center, means for developing a magnetic field concentric to said center and adjacent to the feed device, means for feeding mixed magnetic and non-magnetic particles to the feed device, and means for moving said feed device at a sufficiently high velocity as to result in the generation of centrifugal force to throw off the non-magnetic particles but not sufficient to withdraw the magnetic particles from the effect of said field, substantially as set forth.

2. An improved magnetic separator comprising a feed-belt to which the mixed magnetic and non-magnetic particles are fed, a rotating support for said belt, whereby the belt is caused to move with respect to a fixed center, means for developing a magnetic field concentric to said center and within which the belt moves, and means for moving said belt at a sufficiently high velocity as to result in the generation of centrifugal force to throw off the non-magnetic particles but not to withdraw the magnetic particles from the effect of said field, substantially as set forth.

3. An improved magnetic separator comprising a rotating magnetic field, means for feeding mixed magnetic and non-magnetic particles to said field, means for rotating the field at a sufficiently high velocity as to result in the generation of centrifugal force to throw off the non-magnetic particles, and means for positively withdrawing the magnetic particles so separated from the effect of said field, substantially as set forth.

4. An improved magnetic separator comprising a rotating magnet, a belt passing around said magnet and to which the mixed magnetic and non-magnetic particles are fed, and means for moving said belt and magnet at a sufficiently

high speed as to result in the generation of centrifugal force to throw off the non-magnetic particles, substantially as set forth.

5. An improved magnetic separator comprising in combination a magnet consisting of a core and a pulleylike polar extremity carried by the core, a belt cooperating with said polar extremity and to which the magnetic and non-magnetic particles are fed, and means for moving said belt at a sufficiently high speed as to result in the generation of centrifugal force to throw out the magnetic particles, substantially as set forth.

6. An improved magnetic separator comprising a core, a disk at each end of said core, an overhanging polar extremity carried by each of said disks, the whole constituting a pulley, a belt cooperating therewith, means for feeding magnetic and non-magnetic material to said belt, and means for moving the belt at a sufficiently high speed as to result in the generation of centrifugal force to throw out the non-magnetic particles, substantially as set forth.

7. An improved magnetic separator comprising a core, a disk at each end of said core, an overhanging polar extremity carried by each of said disks, the whole constituting a pulley, a belt cooperating therewith, means for feeding magnetic and non-magnetic material to said belt, means for moving the belt at a sufficiently high speed as to result in the generation of centrifugal force to throw out the non-magnetic particles, and a shield of non-magnetic material covering the polar extremities, substantially as set forth.

8. An improved magnetic separator comprising a core, a disk at each end of said core, an overhanging polar extremity carried by each of said disks, the whole constituting a pulley, a belt cooperating therewith, means for

feeding magnetic and non-magnetic material to said belt, means for moving the belt at a sufficiently high speed as to result in the generation of centrifugal force to throw out the non-magnetic particles, and a magnetizing coil enclosed within the polar extremities of said magnet and so proportioned to the mass of the magnet as to result in the polar extremities being nearly magnetically saturated, substantially as set forth.

9. An improved separating apparatus comprising a plurality of magnetic separators arranged to successively act upon the concentrates from the previous separator, and each separator comprising a rotating magnet and a belt to which the material is fed, the speed of the belt being sufficient to throw off the non-magnetic particles by centrifugal force, substantially as set forth.

THIS SPECIFICATION SIGNED AND WITNESSED THIS 3rd DAY OF January ~~xxx~~ 1900

THOMAS A. EDISON

Witnesses:

1. W. S. MALLORY
2. J. F. RANDOLPH

Oath.

State of NEW JERSEY
County of ESSEX } ss.:

THOMAS A. EDISON, THE ABOVE-NAMED
PETITIONER, BEING DULY SWORN, DEPOSES AND SAYS THAT HE IS A citizen
OF THE United States, and a resident of Llewellyn Park, in the
County of Essex and State of New Jersey;
THAT HE VERILY BELIEVES HIMSELF TO BE THE ORIGINAL, FIRST AND SOLE INVENTOR
OF THE IMPROVEMENT IN MAGNETIC SEPARATORS

DESCRIBED AND CLAIMED IN THE ANNEXED SPECIFICATION; THAT HE DOES NOT
KNOW AND DOES NOT BELIEVE THAT THE SAME WAS EVER KNOWN OR USED BEFORE
HIS INVENTION OR DISCOVERY THEREOF; OR PATENTED OR DESCRIBED IN ANY
PRINTED PUBLICATION IN THE UNITED STATES OF AMERICA OR ANY FOREIGN COUNTRY
BEFORE HIS INVENTION OR DISCOVERY THEREOF, OR MORE THAN TWO YEARS PRIOR
TO THIS APPLICATION; OR IN PUBLIC USE OR ON SALE IN THE UNITED STATES FOR
MORE THAN TWO YEARS PRIOR TO THIS APPLICATION, AND THAT NO APPLICATION
FOR FOREIGN PATENT HAS BEEN FILED BY HIM OR HIS LEGAL REPRESENTATIVES OR
ASSIGNS IN ANY FOREIGN COUNTRY.

THOMAS A. EDISON

SWORN TO AND SUBSCRIBED BEFORE ME THIS 3rd DAY OF January ~~xxx~~ 1900

(SEAL)

J. F. RANDOLPH

NOTARY PUBLIC for
New Jersey.

2-161.

#1023

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

{ SERIES OF 1900.

No. 824

DEPARTMENT OF THE INTERIOR,

United States Patent Office,

Washington, D. C., Jan. 9

SIR:

I have to acknowledge the receipt of the petition, specification, oath, and
drawing of your alleged improvement in

Magnets' Separators.

with Fifteen Dollars as the first fee payable thereon.

The papers are duly filed, and your application for a patent will be taken
up for examination in its order.

The drawing is informal, but has been admitted
for purposes of examination.

Part in section should be
section filed.

You will be duly advised of the examination.

Very respectfully,

Case will be taken up for
examination in about one month.

C. H. Duell
Commissioner of Patents.

J. A. Carson

J. Dyer, Edmonds & Dyer,
N. Y. City.

NOTE.—In order to constitute an application for a patent, the inventor is by law required to furnish his petition, specification,
oath, and drawings (where the nature of the case admits of drawings) and to pay the required fee.
No application is considered as complete, nor can any official action be had thereon, until all its parts, as here specified, are
furnished in due form by the inventor or applicant.

Any communication respecting this application should give the serial number, date of filing, and title of invention.



See if payment is made by check or draft, the credit granted is subject to the collection of the same.

Form No. 245
All communications should be addressed to
The Commissioner of Patents,
Washington, D. C.

2-511

All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

WASHINGTON, D. C.

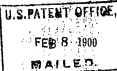
Feb. 8, 1900.

Thomas A. Edison,

Gare Dyer, Edmonds & Dyer,

No. 31 Nassau Street,

New York City, New York.



Please find below a communication from the EXAMINER in charge of your application.

#824, filed Jan. 9, 1900, for Magnetic Separators.



C. H. Duell
Commissioner of Patents.

Applicant's drawing has been criticised by the Chief Draftsman as follows: "Informal; parts in section should be section lined. Admit for examination only." Should this application be finally found otherwise allowable, the drawing must be relieved of objection before the case can be passed to issue. Applicant is required to eliminate "Case No. 1025" from the preamble to the specification, and "case No. 1022" from the first line following the preamble, and to substitute the Office serial number and the date for the latter.

Claim 1 is rejected in view of 148,517, Smith, Mar. 10th, 1874; 348,771, Payne, Sept. 7th, 1886; 463,305, Hoffman, Nov. 17th, 1891, and 548,176, Buchanan, Oct. 22d, 1896.

Claim 2 is rejected in view of Smith, Hoffman and Buchanan, cited above.

Claim 3 is rejected in view of the references for claim 1.

Claim 4 is rejected in view of the references for claim 2.

Claim 5 is rejected in view of the references for claim 2, and British patent 15,885, Languth, July 20th, 1896.

RULE 13. In every amendment the exact word or words to be stricken out or inserted in the application must be specified and the precise point indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper secured from the survey previously filed, and written on both sides of the paper.

See H. M. Miller of Apr. 3/1900. Note made to obtain part.

T. A. Nelson,

#824,

Sheet 2-

Claim 6 is rejected in view of Langguth, cited. The non-magnetic particles are discharged, in part, by centrifugal force in Langguth, and it would not involve invention to impart to Langguth's belt such a speed as to make such force the main factor in the discharge, in view of Smith, Hoffman and Buchanan, cited.

Claim 7 is rejected in view of Langguth, cited; and feature E, of 528,084, Williams, Oct. 23d, 1894.

Claim 8 is rejected as destitute of patentable novelty in view of Langguth, cited.

Claim 9 is rejected in view of Langguth and Buchanan, cited.

The references are in Hills, Ore. & Coal, Magnetic Separators.

Examiner,

Division XIV.

Case No. E-1023,
Filed January 9, 1900.

Abandoned,

Improvements in Magnetic Separators,

C l a i m s .

1. An improved magnetic separator comprising a feed device movable with respect to a fixed center, means for developing a magnetic field concentric to said center and adjacent to the feed device, means for feeding mixed magnetic and non-magnetic particles to the feed device, and means for moving said feed device at a sufficiently high velocity as to result in the generation of centrifugal force to throw off the non-magnetic particles but not sufficient to withdraw the magnetic particles from the effect of said field, substantially as set forth.
2. An improved magnetic separator comprising a feed-belt to which the mixed magnetic and non-magnetic particles are fed, a rotating support for said belt, whereby the belt is caused to move with respect to a fixed center, means for developing a magnetic field concentric to said center and within which the belt moves, and means for moving said belt at a sufficiently high velocity as to result in the generation of centrifugal force to throw off the non-magnetic particles but not to withdraw the magnetic particles from the effect of said field, substantially as set forth.
3. An improved magnetic separator comprising a rotating magnetic field, means for feeding mixed magnetic and non-magnetic particles to said field, means for rotating the field at a sufficiently high velocity as to result in the generation of centrifugal force to throw off the non-magnetic particles, and means for positively withdrawing the magnetic

particles so separated from the effect of said field, substantially as set forth.

4. An improved magnetic separator comprising a rotating magnet, a belt passing around said magnet and to which the mixed magnetic and non-magnetic particles are fed, and means for moving said belt and magnet at a sufficiently high speed as to result in the generation of centrifugal force to throw off the non-magnetic particles, substantially as set forth.

5. An improved magnetic separator comprising in combination a magnet consisting of a core and a pulleylike polar extremity carried by the core, a belt cooperating with said polar extremity and to which the magnetic and non-magnetic particles are fed, and means for moving said belt at a sufficiently high speed as to result in the generation of centrifugal force to throw out the magnetic particles, substantially as set forth.

6. An improved magnetic separator comprising a core, an overhanging polar extremity carried by each of said disks a disk at each end of said core, the whole constituting a pulley, a belt cooperating therewith, means for feeding magnetic and non-magnetic material to said belt, and means for moving the belt at a sufficiently high speed as to result in the generation of centrifugal force to throw out the non-magnetic particles, substantially as set forth.

7. An improved magnetic separator comprising a core, a disk at each end of said core, an overhanging polar extremity carried by each of said disks, the whole constituting a pulley, a belt cooperating therewith, means for feeding magnetic and non-magnetic material to said belt, means for moving the belt at a sufficiently high speed as to result in the generation of centrifugal force to throw out the non-magnetic particles, and a shield of non-magnetic material covering the polar extremities, substantially as set forth.

6. An improved magnetic separator comprising a core, a disk at each end of said core, an overhanging polar extremity carried by each of said disks, the whole constituting a pulley, a belt cooperating therewith, means for feeding magnetic and non-magnetic material to said belt, means for moving the belt at a sufficiently high speed as to result in the generation of centrifugal force to throw out the non-magnetic particles, and a magnetizing coil enclosed within the polar extremities of said magnet and so proportioned to the mass of the magnet as to result in the polar extremities being nearly magnetically saturated, substantially as set forth.

9. An improved ^{separator} apparatus comprising a plurality of magnetic separators arranged to successively act upon the concentrates from the previous separator, and each separator comprising a rotating magnet and a belt to which the material is fed, the speed of the belt being sufficient to throw off the non-magnetic particles of centrifugal force, substantially as set forth.

No. 2335Serial No. 825

6,1024

Applicant.

Address. ✓

Thomas A. EdisonTitle Apparatus for storing and securing Ore and other material in bulk.Filed January 9, 1900Examiner's Room No. 261

Assignee

Ass'g't Exec.

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Page

Patent No.

Issued

ACTIONS.

- 1 Reported Jan. 29, 1900. 16
2 Approved Feb. 21, 1900. 17
3 Reported Mar. 6, 1900. 18
4 19
5 20
6 21
7 22
8 23
9 24
10 25
11 26
12 27
13 28
14 29
15 30
- As per memo
from Mr. Edison
10/14*
- As per memo
from Mr. Edison*

RICHARD N. DYER,

31 Nassau Street,
NEW YORK CITY.

1

G. 102 v

LAW OFFICES
OF
DYER, EDMONDS & DYER.
SPECIALTY:
Patents and Patent Causes,
31 NASSAU ST., NEW YORK.

RICHARD N. DYER,
REGISTRATION NO. 462.
SAMUEL O. EDMONDS,
REGISTRATION NO. 461.
FRANK L. DYER,
REGISTRATION NO. 461.

Petition.

To the Commissioner of Patents:

YOUR PETITIONER THOMAS A. EDISON, a citizen of the United States, residing and having his Post Office address at Ilwellyn Park, in the County of Essex and State of New Jersey,

PRAYS THAT LETTERS PATENT MAY BE GRANTED TO HIM FOR THE APPARATUS FOR DRYING AND SCREENING ORBS AND OTHER MATERIAL IN BULK

SET FORTH IN THE ANNEXED SPECIFICATION; AND HE HEREBY APPOINTS DYER, EDMONDS AND DYER (A FIRM COMPOSED OF RICHARD N. DYER, SAMUEL O. EDMONDS AND FRANK L. DYER), OF NO. 31 NASSAU STREET, NEW YORK CITY, HIS ATTORNEYS, WITH FULL POWER OF SUBSTITUTION AND REVOCATION, TO PROSECUTE THIS APPLICATION, TO MAKE ALTERATIONS AND AMENDMENTS THEREIN, TO RECEIVE THE PATENT, AND TO TRANSACT ALL BUSINESS IN THE PATENT OFFICE CONNECTED THEREWITH.

Thomas A. Edison

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the County of Essex and State of New Jersey, have invented a certain new and useful APPARATUS FOR DRYING AND SCREENING ORES AND OTHER MATERIAL IN BULK (Case No. 1024), of which the following is a specification:-

In my application Case No. 1017 (filed November 9, 1899, Serial No. 736,350), I describe and claim an improved process of drying and screening ores and other material in bulk, consisting in crushing the wet or damp ore or other bulk material, in passing the crushed material through a dryer by which it is dried, in then subjecting the dried, crushed material to a screening operation by which particles of sufficient fineness will be separated from the material and conducted to the point of use, in recrushing the tailings of the screen or screens, which tailings are known in the art as "returns", in mixing the recrushed, dry, hot returns with freshly crushed, wet material, and in passing the mixture again through the dryer, and so on. My present invention relates to an improved apparatus for carrying such a process into effect.

In order that the invention may be better understood, attention is directed to the accompanying drawing, showing the improved apparatus in diagram.

1 represents a pair of crushing rolls or other crushing apparatus, provided with a hopper 2, into which the wet or damp ore or other material in bulk is delivered. This crushing apparatus is of any suitable type. 3 is a conveyer or belt, located beneath the crushing apparatus 1 and re-

ceiving the crushed material therefrom. 4 is an elevator, into the boot of which the crushed material from the conveyor 3 is deposited. This elevator carries the crushed material upwards and deposits it in the hopper 5 of a dryer 6 of any suitable type. Preferably the dryer 6 is supplied with hot air from a furnace 7 and is provided on its interior with the inclined baffle-plates 8, by which the material will be caused to pass through the dryer in the shape of a plurality of flat, zig-zag streams. The crushed, dried material from the dryer 6 is deposited in the boot 9 of an elevator 10, and is conveyed by said elevator to a screening apparatus 11 of any suitable type. Preferably this screening apparatus comprises a plurality of screen sections 12, 12, and a series of checking surfaces 13, by means of which the material after it has passed over one screen section will be brought to rest before passing over the screen section next below. By thus passing the material more slowly over the screen sections, the screening operation is facilitated.

The fine material from the screens falls upon an incline 14 and is deposited on a conveyor 15, by which it is carried to the point of use. The tailings of the screens, which are in the form of dry, hot returns, are passed through a recrushing apparatus 16 of any suitable type and by which such tailings will be recrushed. The recrushed material from the recrushing apparatus 16 is deposited on the conveyor 3, so as to be intimately associated with the wet or damp material from the crushing apparatus 1.

The operation will be as follows:- The wet or damp ore or other material in bulk is supplied to the hopper 2 in the desired quantity and is crushed between the crushing rolls 1 or other crushing apparatus. The wet or damp,

crushed material being deposited on the conveyor 3 will be elevated by the elevator 4 and pass through the dryer 6, by which it will be dried. From the dryer 6, the crushed, dry material will be elevated by the elevator 10 and pass through the screening apparatus 11. Sufficiently fine material will be carried off by the conveyor 15, but the coarse tailings or returns will be passed through the re-crushing apparatus 16 and again deposited upon the conveyor 3. By thus adding the re-crushed, dry, hot returns to the wet or damp material on the conveyor 3, a part of the moisture carried by the wet or damp material will be driven out and the proportion of moisture contained in the mixture passing through the dryer 6 will be considerably reduced, so that a relatively small dryer may be used, utilizing comparatively low temperatures.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is as follows:-

1. An apparatus for screening and drying wet or damp material in bulk, comprising in combination a crushing apparatus, a dryer to which the crushed, wet or damp material is directed, a screening apparatus for screening the dried, crushed material from the dryer, and means for re-crushing the tailings of said screening apparatus and for mixing the re-crushed tailings with the crushed, wet or damp material, substantially as set forth.

2. An apparatus for screening and drying wet or damp material in bulk, comprising in combination a crushing apparatus, a dryer to which the crushed, wet or damp material is directed, a screening apparatus to which the dried, crushed material from the dryer is directed, a re-crushing apparatus for re-crushing the tailings of the screening apparatus, and means for mixing the re-crushed, dry tailings

with the crushed, wet or damp material, substantially as set forth.

3. An apparatus for screening and drying wet or damp material in bulk, comprising in combination a crushing apparatus, a dryer to which the crushed, wet or damp material is directed, a screening apparatus to which the dried, crushed material from the dryer is directed, a recrushing apparatus for recrushing the tailings of the screening apparatus, and a conveyor located beneath the crushing and recrushing apparatus and onto which the crushed and recrushed material is deposited, substantially as set forth.

THIS SPECIFICATION SIGNED AND WITNESSED THIS 3rd DAY OF January 1900

Thomas A. Edison

Witnesses:

1. W.S. Mallory
2. J. F. Randolph

Oath.

State of New Jersey } ss.:
County of Essex

THOMAS A. EDISON

, THE ABOVE-NAMED

PETITIONER, BEING DULY SWORN, DEPOSES AND SAYS THAT HE IS A citizen
OF THE United States and a resident of Llewellyn Park, in the
County of Essex and State of New Jersey;
THAT HE VERILY BELIEVES HIMSELF TO BE THE ORIGINAL, FIRST AND SOLE INVENTOR
OF THE APPARATUS FOR DRYING AND SCREENING COBS AND OTHER
MATERIAL IN BULK

DESCRIBED AND CLAIMED IN THE ANNEXED SPECIFICATION; THAT HE DOES NOT
KNOW AND DOES NOT BELIEVE THAT THE SAME WAS EVER KNOWN OR USED BEFORE
HIS INVENTION OR DISCOVERY THEREOF; OR PATENTED OR DESCRIBED IN ANY
PRINTED PUBLICATION IN THE UNITED STATES OF AMERICA OR ANY FOREIGN COUNTRY
BEFORE HIS INVENTION OR DISCOVERY THEREOF, OR MORE THAN TWO YEARS PRIOR
TO THIS APPLICATION; OR IN PUBLIC USE OR ON SALE IN THE UNITED STATES FOR
MORE THAN TWO YEARS PRIOR TO THIS APPLICATION, AND THAT NO APPLICATION
FOR FOREIGN PATENT HAS BEEN FILED BY HIM OR HIS LEGAL REPRESENTATIVES OR
ASSIGNS IN ANY FOREIGN COUNTRY.

Thomas A. Edison

SWORN TO AND SUBSCRIBED BEFORE ME THIS 3rd DAY OF January 1900

J. F. Randolph
NOTARY PUBLIC.

(SEAL)

W.S. Mallory

2-161.

#1024

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

SERIES OF 1900.
No. 825.

DEPARTMENT OF THE INTERIOR,

United States Patent Office

Washington, D. C.,



SIR:

I have to acknowledge the receipt of the petition, specification, oath, and drawing of your alleged improvement in

Apparatus for Drying & Screening Ore, &c., in Bulk.

with Fifteen Dollars as the first fee payable thereon.

The papers are duly filed, and your application for a patent will be taken up for examination in its order.

The drawing is informal, but has been admitted for purposes of examination.

Both in color black should be action hand.

You will be duly advised of the examination.

Very respectfully,

Care will be taken up in examination in about one month.

C. H. Duell
Commissioner of Patents.

Thomas A. Edison

*of Dyer, Edwards & Dyer,
21 Nassau St., N.Y. City.*

NOTE.—In order to constitute an application for a patent, the inventor is by law required to furnish his petition, specification, oath, and drawings (where the nature of the case admits of drawings) and to pay the required fee.
No application is considered as complete, nor can any official action be had thereon, until all the parts, as here specified, are furnished in due form by the inventor or applicant.

Any communication respecting this application should give the serial number, date of filing, and title of invention.

RECEIVED stamp is made by check or draft, the credit granted is subject to the collection of the same.

3-511.

Room No. 261.
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

WASHINGTON, D. C., Jan. 29, 1900.

Thomas A. Edison,

C/o Dyer, Edmonds & Dyer,

31 Nassau St.,

New York, N. Y.



Please find below a communication from the EXAMINER in charge of your application.

Ser No 825, Filed Jan. 9, 1900, for "Apparatus for Drying and
Screening Ores."

C. H. Duell
Commissioner of Patents.

This application has been taken up for examination.

The claims are rejected upon the patents to Cummer, No. 634,
199, Oct. 3, 1899, in Driers, Cyl., Int., Rot., Inclined, and No. 634,200, Oct. 3, 1899, in Driers -Processes. No invention would
be required to use one crusher to crush the material before it
reaches the drier, and another to crush the tailings from the screen.

THOMAS A. EDISON

APPARATUS FOR DRYING AND SCREENING ORES

FILED JANUARY 9, 1900

SERIAL NO. 825.

ROOM NO. 261.

HON. COMMISSIONER OF PATENTS,

S I R :

Reconsideration of the claims is respectfully requested, for the following reasons:-

1. Applicant's invention relates to an apparatus for dealing with refractory materials, such as ore, necessitating the employment of crushing devices. The Cummer patents both relate to apparatus for treating soft and easily disintegratable material, like garbage.

2. Since applicant deals with refractory material, he employs of necessity in the apparatus a crushing device, but since Cummer employs his apparatus with garbage etc., he does not use a crushing device.

3. With applicant's apparatus, the crushed, wet or damp material is mixed with the recrushed, hot or dry tailings or returns before being introduced into the dryer. In the Cummer patent, the disintegrated tailings from the screen are added to the fresh garbage at the hopper of the dryer, so that there is not an intimate mixture.

4. So far as the third claim is concerned, it is limited specifically to "a conveyor located beneath the crushing and recrushing apparatus and onto which the crushed and recrushed material is deposited". By using a conveyor of this kind, the mixture of the crushed and recrushed material is facilitated. An equivalent, therefore, is not found in either of the Cummer patents of record.

Very respectfully,
THOMAS A. EDISON,

By

New York, February 21, 1900.

His Attorneys.

Room No. 251,
 is communication should be addressed to
 "The Commissioner of Patents,
 Washington, D. C."

All communications respecting this
 application should give the serial number,
 date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
 UNITED STATES PATENT OFFICE,

WASHINGTON, D. C., March 6, 1900.

T. A. Edison,

C/o Dyer, Edmonds & Dyer,

31 Nassau Street,

New York, N. Y.



Please find below a communication from the EXAMINER in charge of your application:

Ser No 825, Filed Jan. 9, 1900, for "Apparatus for Drying Ore, &c"

C. H. Duell
 Commissioner of Patents.

This application has been again examined, and as no reason is seen for modifying the previous action, the claims are finally rejected upon the references of record. The apparatus shown in the references is described as intended for use in disintegrating and drying lignite and gypsum as well as garbage.

Case No. E-1024,

Abandoned,

Filed Jan. 9, 1900,

Apparatus for Drying and Screening Ores and other Material in Bulk.

C l a i m s.

1. An apparatus for screening and drying wet or damp material in bulk, comprising in combination a crushing apparatus, a dryer to which the crushed, wet or damp material is directed, a screening apparatus for screening the dried, crushed material from the dryer, and means for recrushing the tailings of said screening apparatus and for mixing the recrushed tailings with the crushed, wet or damp material substantially as set forth.

2. An apparatus for screening and drying wet or damp material in bulk, comprising in combination a crushing apparatus, a dryer to which the crushed, wet or damp material is directed, a screening apparatus to which the dried, crushed material from the dryer is directed, a recrushing apparatus for recrushing the tailings of the screening apparatus, and means for mixing the recrushed, dry tailings with the crushed, wet or damp material, substantially as set forth.

3. An apparatus for screening and drying wet or damp material in bulk, comprising in combination a crushing apparatus, a dryer to which the crushed, wet or damp material is directed, a screening apparatus to which the dried, crushed material from the dryer is directed, a recrushing apparatus for recrushing the tailings of the screening apparatus, and a conveyor located beneath the crushing and recrushing apparatus and onto which the crushed and recrushed material is deposited, substantially as set forth.

No. 2342E. 1026Serial No. 3456Applicant
Thomas A. EdisonAddress. ✓Title Method of Making Improvements inFiled January 31, 1900Examiner's Room No. 149

Assignee

Ass'g't Exec.

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Patent No.

Issued

ACTIONS.

1. Reported Feb. 27, 1900 16
 2. Amended Mch 29, 1900 17
 3. Reported Apr. 17, 1900 18
 4. Amended Aug 27, 1900 19
 5. Exam. Report Sept. 19, 1900 20
 6. Hearing set for Oct 8, 1900 21
 7. Brief filed Oct 12, 1900 22
 8. Decision Oct 16, 1900 23
 9. 24
 10. 25
 11. 26
 12. 27
 13. 28
 14. 29
 15. 30
- Abandoned*
- Hofbauer*
Dr. P.
G. L. P.

DYER, EDMONDS & DYER,

31 Nassau Street,
NEW YORK CITY.

LAW OFFICES
OF
DYER, EDMONDS & DYER,
SPECIALTY,
Patents and Patent Causes,
31 NASSAU ST., NEW YORK.

RICHARD N. DYER,
REGISTRATION NO. 400.
SAMUEL O. EDMONDS,
REGISTRATION NO. 411.
FRANK L. DYER,
REGISTRATION NO. 393.

Petition.

To the Commissioner of Patents:

YOUR PETITIONER, THOMAS A. EDISON, a citizen of the United States, residing and having his post office address at Llewellyn Park, in the County of Essex and State of New Jersey,

PRAYS THAT LETTERS PATENT MAY BE GRANTED TO HIM FOR THE METHOD OF MAKING
FINE SCREENING PLATES

SET FORTH IN THE ANNEXED SPECIFICATION; AND HE HEREBY APPOINTS DYER, EDMONDS AND DYER (A FIRM COMPOSED OF RICHARD N. DYER, SAMUEL O. EDMONDS AND FRANK L. DYER), OF NO. 31 NASSAU STREET, NEW YORK CITY, HIS ATTORNEYS, WITH FULL POWER OF SUBSTITUTION AND REVOCATION, TO PROSECUTE THIS APPLICATION, TO MAKE ALTERATIONS AND AMENDMENTS THEREIN, TO RECEIVE THE PATENT, AND TO TRANSACT ALL BUSINESS IN THE PATENT OFFICE CONNECTED THEREWITH.

Thomas A. Edison

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Ilwellyn Park, in the County of Essex and State of New Jersey, have invented a certain new and useful METHOD OF MAKING FINE SCREENING PLATES (case No. 1026), of which the following is a description:

My invention relates to the process of making fine screening plates of the type described in my application for patent filed June 29, 1899, Serial No. 722,229, said plates being of extreme thinness and having screening orifices, preferably slots, therein of greater width than the thickness of the plates. The object of the present invention is to provide a method of making such plates, whereby their durability will be increased.

In carrying my process into effect I subject the screening surface, and preferably both surfaces, of the plate to a hardening operation, the central portion of the plate remaining in a malleable condition, so that the plate will not be of objectionable brittleness.

In the accompanying drawing I show in figure 1 a cross-sectional view of a screen plate of extreme thinness and provided with elongated slots therein of greater width than the thickness of the plate, and in figure 2 a similar view illustrating the apparatus for carrying out the improved process followed in the partial hardening of such plates.

In both of the above views corresponding parts are represented by the same letters of reference.

A represents a thin sheet metal plate suitably hardened as I will explain, provided with orifices, preferably slots, a therein. The relation between the thickness of

the plate A and the width of the orifices a is such that the former dimension is less than the latter. In the specific instance illustrated I show a plate which is indicated as being .006 of an inch in thickness and having slots a therein which are indicated as being of a width each of .009 of an inch.

In making these screens I prefer to proceed substantially as follows: A sheet-iron plate A is first secured, and the orifices a are formed therein preferably in a punch-press with gang-dies or punches. The plate, after having been punched with the orifices, is then dipped in a bath of molten cyanide of potassium for a few seconds. It is then withdrawn and immediately laid upon a flat iron plate such as B (figure 2), over which is located a corresponding plate C, which is allowed to drop upon the punched plate A. The sudden chilling to which the plate A will be subjected by coming in contact with the larger masses of the plates B and C, serves to harden the plate A and to keep it perfectly flat until cooled. Any tendency of the plate A to warp or buckle during the cooling operation is thus overcome. After the punched plate A has sufficiently cooled, it is then immersed in a water bath to dissolve off the cyanide of potassium, and after this bath it is dried and oiled in any suitable and usual manner. As a specific instance of a convenient process for the proper hardening of plates .006 of an inch in thickness having punched slots therein each of a width of .009 of an inch, I will state that the plate may be allowed to remain in the molten bath of cyanide of potassium for thirty-five seconds, and during this period the iron will become ^{carbonized} carbonated to a depth of about .001 of an inch on each side. The surface hardening to which the screen plate will be thus subjected between the plates B and C will be of a very high order, while at the same time the

inner portions of the plate will be left sufficiently soft and pliable as to allow the plate to be bent or otherwise manipulated. If the plate were allowed to remain too long in the bath of cyanide of potassium, it would be rendered objectionably brittle, since the absorption of carbon would progress entirely through the same.

Instead of the special surface hardening process above described for the proper hardening of screen plates of this specific character, it will be understood that surface hardening of said screens may be carried out by the usual method of cementation by packing the plates in charcoal, leather, etc. I consider the special process above described to be preferable however, since it is more expeditious and the depth of ^{carbonizing} ~~carbonation~~ is under entire control.

Having now described the invention, what I claim as new and desire to secure by Letters Patent is as follows:

1. The method of making screening plates which consists in first forming a series of orifices in a sheet of malleable metal, and in subjecting the screening surface of said metal to a hardening process, substantially as set forth.
2. The method of making screening plates which consists in first forming a series of orifices in a plate of malleable metal, and in subjecting both surfaces of said plate to a hardening process, substantially as set forth.
3. The method of making screening plates which consists in first forming a series of orifices in a plate of malleable metal, in dipping the plate in a ^{carbonizing} ~~carbonating~~ liquid, in then subjecting the screening surface to a chilling action, and in finally washing the plate to remove such liquid, substantially as set forth.
4. The method of forming screening plates which

consists in first forming a series of orifices in a plate of malleable metal, in dipping the plate in molten cyanide of potassium, in then subjecting the screening surface to a chilling action, and in finally washing the plate to remove the cyanide of potassium, substantially as set forth.

5. The method of making screening plates which consists in forming a series of orifices in a plate of malleable metal, in dipping said plate in a bath of molten cyanide of potassium, in chilling the screening surface of said plate, in maintaining the plate under a flattened pressure until cool, and in finally washing the plate for the removal of the cyanide of potassium, substantially as set forth.

6. The method of making screening plates which consists in forming a series of orifices in a plate of malleable metal, in dipping the plate in a bath of molten cyanide of potassium, in subjecting the plate to pressure between two ^{cooled} plates of larger mass, whereby the surfaces of the screen plate will be chilled and the plate will be maintained under pressure during the cooling operation, and finally, after the said plate has been cooled, in dipping it in a bath of water for the removal of the cyanide of potassium, substantially as set forth.

THIS SPECIFICATION SIGNED AND WITNESSED THIS

26th DAY OF January, 1900

Thomas A. Edison

Witnesses:

1. J. F. Randolph
2. Frederick C. McDonald

Oath.

State of New Jersey } ss.:
County of Essex

THOMAS A. EDISON, THE ABOVE-NAMED

PETITIONER, BEING DULY SWORN, DEPOSES AND SAYS THAT HE IS A citizen
OF THE United States, and a resident of Llewellyn Park, in the
County of Essex, State of New Jersey;
THAT HE VERILY BELIEVES HIMSELF TO BE THE ORIGINAL, FIRST AND SOLE INVENTOR
OF THE METHOD OF MAKING FINE SCREENING PLATES

DESCRIBED AND CLAIMED IN THE ANNEXED SPECIFICATION; THAT HE DOES NOT
KNOW AND DOES NOT BELIEVE THAT THE SAME WAS EVER KNOWN OR USED BEFORE
HIS INVENTION OR DISCOVERY THEREOF; OR PATENTED OR DESCRIBED IN ANY
PRINTED PUBLICATION IN THE UNITED STATES OF AMERICA OR ANY FOREIGN COUNTRY
BEFORE HIS INVENTION OR DISCOVERY THEREOF, OR MORE THAN TWO YEARS PRIOR
TO THIS APPLICATION; OR IN PUBLIC USE OR ON SALE IN THE UNITED STATES FOR
MORE THAN TWO YEARS PRIOR TO THIS APPLICATION, AND THAT NO APPLICATION
FOR FOREIGN PATENT HAS BEEN FILED BY HIM OR HIS LEGAL REPRESENTATIVES OR
ASSIGNS IN ANY FOREIGN COUNTRY.

SWORN TO AND SUBSCRIBED BEFORE ME THIS

26th DAY OF January, 1900

Thomas A. Edison
J. F. Randolph
NOTARY PUBLIC

(SEAL)

Fig. 1

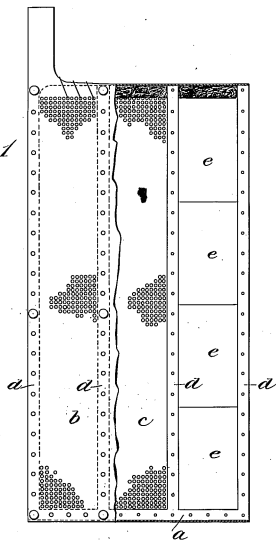
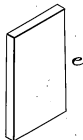


Fig. 2



Witnesses:

Jas. F. Coleman
Geo. R. Taylor

Inventor

Thomas A. Edison
by Alfred Edmunds

Att'y

2-161.

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

DEPARTMENT OF THE INTERIOR,

United States Patent Office

Washington, D. C., Jan 31, 1900.

SERIES OF 1900.



SIR:

I have to acknowledge the receipt of the petition, specification, oath, and drawing of your alleged improvement in

Method of Making Fine Screening Plates

with Fifteen Dollars as the first fee payable thereon.

The papers are duly filed, and your application for a patent will be taken up for examination in its order.

You will be duly advised of the examination.

Very respectfully,

Case will be taken up for examination in about one month.

C. H. Duell
Commissioner of Patents.

J. A. Edison

1. Dyer, Edmonds & Dyer
31 Nassau St. N.Y.C.

NOTE.—In order to constitute an application for a patent, the inventor is by law required to furnish his petition, specification, oath, and drawings (where the nature of the case admits of drawings) and to pay the required fee.
No application is considered as complete, nor can any official action be had thereon, until all its parts, as here specified, are furnished in due form by the inventor or applicant.

Any communication respecting this application should give the serial number, date of filing, and title of invention.

NOTE.—If payment is made by check or draft, the credit granted is subject to the collection of the same.

5-071.

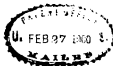
Room No. 144.
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."



DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

WASHINGTON, D. C., February 27 1900.

Thomas A. Raison,
Care Dyer, Edmonds & Dyer,
31 Nassau Street,
New York City.



Please find below a communication from the EXAMINER in charge of your application. For
Method of making Fine Screening- Plates. filed January 31 1900-
No. 6456.

C. H. Duell
Commissioner of Patents.

The word carburiized should be substituted for "carbonated"
in line 30, page 2, carburiization for "carbonation", line 14, page
3, and carburiizing for "carbonating", line 28, page 3.

The carburiizing agent is not liquid after cooling and hence
claim 3 is incorrect in statement.

What is meant by "flattened pressure", claim 5, is not clear.

In claim 6 the plates should be recited as cold, there being
otherwise no chilling action.

Claims 1, 2, 3 and 4 are rejected on U.S. No. 52796, Feby. 20, 1886,
Savage, A. & T. O. & C. H. Compounds; the use of the process of case
hardening there described for hardening screen plates, made in the
ordinary way, would not involve invention.

Claims 5 and 6 are rejected on patent to Savage, taken with
British No. 1037 April 23 1884, Dodge, A. & T. Hard App. Clamps.

RULE 73. In every amendment the exact word or words to be stricken out or inserted in the application must be specified
and the precise point indicated where the change or insertion is to be made. All such amendments must be submitted on paper
separate from the papers previously filed, and written on but one side of the paper.

THOMAS A. EDISON

METHOD OF MAKING FINE SCREENING PLATES

FILED JANUARY 31, 1900

SERIAL NO. 3456

ROOM NO. 149.

HONORABLE COMMISSIONER OF PATENTS,

S I R :-

In the above entitled application, we
amend as follows:

Page 2, line 30, erase "carbonated" and substitute
----- carburized -----

Page 3, line 14, erase "carbonation" and substitute
----- carburization -----

Claim 3, line 3, erase "carbonating" and substitute
----- carburizing -----; lines 5--6, erase "to remove
such liquid".

Claim 6, line 5, before "plates" insert ----cold----

By the expression "flattened pressure" in claim 5,
applicant means the application of pressure which contains
the screening plate in a flattened condition. Re-
consideration of the claim is requested.

Applicant does not claim broadly or specifically a
method of case-hardening metal plates. The claims cover
applicant's invention of case-hardening screening plates
by which an essentially new article of manufacture will be
secured. So far as applicant knows, no one before his in-
vention ever made use of a screening plate which approached
in thinness the plates used by applicant. By using ex-
tremely thin screening plates, a very superior screening
operation can be effected; yet such plates would be entire-
ly worthless unless they were made durable enough for the
purpose, and to this end therefore, applicant subjects the

screens to a case-hardening process by which a hardened screening surface can be secured.

Very respectfully,

THOMAS A. EDISON,

By _____

His Attorneys.

New York, March 29, 1900.

2-246.

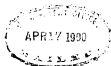
Room No. 449.
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

WASHINGTON, D. C.,

A. H. H.

Apr. 17, 1900



Thomas A. Edison,
Care Dyer, Edmonds & Dyer,
31 Nassau St.,
New York, N. Y.

Please find below a communication from the EXAMINER in charge of your application.

No. 3456, filed Jan. 31, 1900, - "Method of Making Fine Screening Plates".

C. H. Duell
Commissioner of Patents.

Amendment filed Mar. 30, 1900, has been entered.

It is still held that the expression "flattened pressure" is not descriptive, and the explanation of what is meant thereby contained in the paper above referred to, is equally lacking in clearness.

Claims 1, 2, 3, 4, 5 and 6 are again rejected on the references cited and for the reasons given in last official letter. It is still held that there is no invention in hardening screen plates made in the ordinary way by old processes commonly employed for hardening other articles.

Ex'r Div. 3.

RULE 73. In every amendment the exact word or words to be stricken out or inserted in the application must be specified and the precise point indicated where the change or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper.

In every application for a patent filed subsequent to December 31, 1897, responsive action must be made by the inventor within one year after the last office action or the case will become abandoned.

THOMAS A. EDISON,)
METHOD OF MAKING FINE SCREENING PLATES,)
FILED, JANUARY 31, 1900, : ROCKET NO. 149.
SERIAL NO. 3456.)

HON. COMMISSIONER OF PATENTS,

Sir :

In the above entitled application, we hereby appeal to the Examiners-in-Chief from the decision of the Primary Examiner, who, on April 17, 1900, rejected for a second time, and finally, all the claims of the case, and we assign the following reasons of appeal:

1. That the Examiner erred in holding that the references of record meet the terms of the rejected claims;

2. That the Examiner erred in holding that the references meet the substance of the rejected claims; and

3. That the Examiner erred in not allowing the rejected claims.

An oral hearing is requested.

Very respectfully,

THOMAS A. EDISON,

By

His Attorneys.

31 Nassau St., New York,

August 29, 1900.

2-044.

Room No. _____
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

DEPARTMENT OF THE INTERIOR



U. S. Patent Office,

Washington, D. C. Sep 1 1900, 189

SIR:

I have to acknowledge the receipt of the ^{to} APPEAL in the _____

Ex in Chief

in your application for Improvement in _____

*Method of making fine screening
Plates.*

with \$10. _____

the fee payable thereon.

Of the result due advice will be given.

Very respectfully,

C. H. Duell
Commissioner of Patents.

J. A. Edison

Op. Dyer, Edmonds & Dyer.

31. Nassau Street -

New York N.Y.

SEP-11 1900 If payment is by check or draft the credit granted is subject to the collection of the same.

Duplicate to Decision
To Attorney



UNITED STATES PATENT OFFICE.

In re Application of Thomas A. Edison, : Before the
Filed Jan. 31, 1900, Ser. No. 3456, - : Examiners-in-Chief,
"Method of Making Fine Screening Plates". : On Appeal.
----- : Div. 3, Sept. 19, 1900.

Examiner's Statement.



The claims finally rejected are:

"1. The method of making screening plates which consists in first forming a series of orifices in a sheet of malleable metal, and in subjecting the screening surface of said metal to a hardening process, substantially as set forth.

"2. The method of making screening plates which consists in first forming a series of orifices in a plate of malleable metal, and in subjecting both surfaces of said plate to a hardening process, substantially as set forth.

"3. The method of making screening plates which consists in first forming a series of orifices in a plate of malleable metal, in dipping the plate in a carburizing liquid, in then subjecting the screening surface to a chilling action, and in finally washing the plate, substantially as set forth.

"4. The method of forming screening plates which consists in first forming a series of orifices in a plate of malleable metal, in dipping the plate in molten cyanide of potassium, in then subjecting the screening surface to a chilling action, and in finally washing the plate to remove the cyanide of potassium, substantially as set forth.

"5. The method of making screening plates which consists in forming a series of orifices in a plate of malleable metal, in dipping said plate in a bath of molten cyanide of potassium, in chilling the screening surface of said plate, in maintaining the plate under a flattened pressure until cool, and in finally washing the plate for the removal of the cyanide of potassium, substantially as set forth.

"6. The method of making screening plates which consists in forming a series of orifices in a plate of malleable metal, in dipping the plate in a bath of molten cyanide of potassium, in subjecting the plate to pressure between two cold plates of larger mass, whereby the surfaces of the screen plate will be chilled and the plate will be maintained under pressure during the cooling operation, and finally, after the said plate has been cooled, in dipping it in a bath of water for the removal of the cyanide of potassium, substantially as set forth."

The references cited are:

- ✓ U. S. No. 52,796, Feb. 20, 1866, Savage, (A. & T., C. & C. H., Comp.);
Brit. No. 1,037, Apr. 23, 1864, Dodge, (A. & T., Hard. App., Clarks).

The alleged invention relates to the formation of screen plates, and, generally stated, the process may be said to consist in punching holes of the desired size in ordinary sheet iron, and then case hardening one or both surfaces. The surface hardening may be effected by any ordinary case hardening process (see last paragraph of the description and claims 1 and 2), but preferably, by heating the plate in molten potassium cyanide and chilling between cooled plates. (claims 4, 5 and 6).

The use of fused potassium cyanide for heating and carburizing wrought iron followed by chilling to harden the surface is old as shown by the patent to Savage, noted. In said patent the article is immersed in a bath of fused potassium cyanide and the patentee says: "Having allowed the metal to remain in the 'fused bath as long as desirable, I remove it and immediately 'submerge it in a cooling bath". (Lines 6 to 9; 2nd column). "I am thus enabled to produce the effects of case hardening on 'malleable iron to any given depth". (Lines 19 to 21; 2nd column). Although the patentee does not specify any particular article to be hardened no invention or experiment is necessary to extend the use of the process to any article made of malleable iron. The British patent to Dodge discloses the use of hollow boxes, cooled by a circulating current of water, and the "saw-blade plate or sheet of steel to be hardened is placed whilst in a heated state between them, whereupon the two boxes are caused "to approach and compress the article between them". The use of this means for chilling in ^{the} bath of Savage does not amount to invention.

Respectfully submitted,

Ex'r Div. 3.

(2-051.)

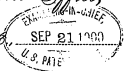
Room No. 242.
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

DEPARTMENT OF THE INTERIOR,



United States Patent Office,

Washington, D. C.



Thos A. Edison

% J. J. Edwards & J. J. Edwards, attys.
New York

N. Y.

SIR:

The appeal from the decision of the Examiner in the case of
Thos A. Edison for a patent for an improvement in
Method of Making Fine Screwing Plates
filed Jan. 11, 1900, 38- Serial No. 3,456, will be heard by the
Examiners-in-Chief, at 3 P.M. on Monday Oct 8, 1900.

If appellant, or his attorney, shall not appear at that time the hearing will
be regarded as waived, and the case will be decided upon the record.

Very respectfully,

C. H. Duell
Commissioner of Patents.

THOMAS A. EDISON

METHOD OF MAKING FINE SCREENING PLATES

FILED JANUARY 31, 1900

SERIAL NO. 3466

:
: BEFORE THE
: EXAMINERS IN CHIEF
:
: ON APPEAL.
:

BRIEF FOR APPELLANT.

Applicant makes use, in his ore milling and cement plants, of a large number of screening plates slotted in the direction of flow of the material. He found that by making the plates extremely thin, there was much less liability of particles becoming wedged in the screening openings than if the plates were thick. In other words, with very thin plates the walls of the screening openings are reduced to the minimum, and it becomes practically impossible for any particles to become wedged in the openings below the surface of the plate, as frequently does occur when relatively thick plates are used. Taking, for example, the figures mentioned in the drawings, the slots are less than one one-hundredth of an inch in width, while the plates themselves are only two-thirds as thick. With plates of this extreme thinness, it was found that they became quickly worn out. On the other hand, it would be impossible to punch or stamp the plates in steel in order that they might be durable. In order, therefore, to make an essentially new article of manufacture, i.e. an extremely thin but durable and flexible screen plate, applicant first forms the screening slots in a malleable sheet and then surface hardens it by an old and well known process. The novel step in each of the claims is "forming a series of orifices in a sheet of malleable metal", and so far as the references disclose, this is an entirely new step in the method of making case-hardened

screen plates.

In view of the commercial and practical value of the invention and the difficulty of claiming the article effectively except as a process, we think the claims should be allowed.

Respectfully submitted.

THOMAS A. EDISON,

By _____

His Attorneys.

New York, October 11, 1900.

Before the Examiners-in-Chief, on Appeal.



Application of Thomas A. Wilson for a patent for improvement in Methods of Making Fine Screening Plates, filed Jan. 31, 1900. Serial No. 3, 456.

Messrs. Dyer, Rhmonds & Dyer for appellant.

The claims appealed are:

- "1. The method of making screening plates which consists in first forming a series of orifices in a sheet of malleable metal, and in subjecting the screening surface of said metal to a hardening process, substantially as set forth.
- "2. The method of making screening plates which consists in first forming a series of orifices in a plate of malleable metal, and in subjecting both surfaces of said plate to a hardening process, substantially as set forth.
- "3. The method of making screening plates which consists in first forming a series of orifices in a plate of malleable metal, in dipping the plate in a carburizing liquid, in then subjecting the screening surface to a chilling action, and in finally washing the plate, substantially as set forth.
- "4. The method of forming screening plates which consists in first forming a series of orifices in a plate of malleable metal, in dipping the plate in molten cyanide of potassium, in then subjecting the screening surface to a chilling action, and in finally washing the plate to remove the cyanide of potassium, substantially as set forth.
- "5. The method of making screening plates which consists in forming a series of orifices in a plate of malleable metal, in dipping said plate in a bath of molten cyanide of potassium, in chilling the screening surface of said plate, in maintaining the plate under a flattened pressure until cool, and in finally washing the plate for the removal of the cyanide of potassium, substantially as set forth.
- "6. The method of making screening plates which consists in forming a series of orifices in a plate of malleable metal, in dipping the plate in a bath of molten cyanide of potassium, in subjecting the plate to pressure between two cold plates of larger mass, whereby the surfaces of the screen plate will be chilled and the plate will be maintained under pressure during the cooling operation, and finally, after the said plate has been cooled, in dipping it in a bath of water for the removal of the cyanide of potassium, substantially as set forth."

The references are U. S. patent to

Savage, February 20, 1866, No. 54, 796;
British Patent No. 1, 037 of 1864 to Dodge.

The alleged invention in this case amounts to nothing more than the double use of an old hardening process. It is immaterial that the process is applied after the screening plate is completed by the formation of a series of orifices with which it must necessarily be provided, for it would be unreasonable for one to undertake to produce such orifices after subjecting the plate to the hardening process.

The patent to Savage discloses the particular hardening process which appellant employs and the British patent to Dodge shows that it is old to compress an article between cooled hollow boxes so as to retain the original shape of said article.

The decision of the Examiner is affirmed as to all of the appealed claims.

J. Q. Stewart }
J. H. Brinkerton } Examiners-in-Chief.

3rd member absent.

Case No. E-1026,
Filed January 31, 1900.

Abandoned,

Method of Making Fine Screening Plates.

C l a i m s .

1. The method of making screening plates which consists in first forming a series of orifices in a sheet of malleable metal, and in subjecting the screening surface of said metal to a hardening process, substantially as set forth.
2. The method of making screening plates which consists in first forming a series of orifices in a plate of malleable metal, and in subjecting both surfaces of said plate to a hardening process, substantially as set forth.
3. The method of making screening plates which consists in first forming a series of orifices in a plate of malleable metal, in dipping the plate in a carbonating liquid, in then subjecting the screening surface to a chilling action, and in finally washing the plate to remove such liquid, substantially as set forth.
4. The method of forming screening plates which consists in first forming a series of orifices in a plate of malleable metal, in dipping the plate in molten cyanide of potassium, in then subjecting the screening surface to a chilling action, and in finally washing the plate to remove the cyanide of potassium, substantially as set forth.
5. The method of making screening plates which consists in forming a series of orifices in a plate of malleable metal, in dipping said plate in a bath of molten cyanide of potassium, in chilling the screening surface of said plate, in maintaining the plate under a flattened pressure until cool, and in finally washing the plate for the removal of the cyanide of potassium, substantially as set forth.
6. The method of making screening plates which con-

sists in forming a series of orifices in a plate of malleable metal, in dipping the plate in a bath of molten cyanide of potassium, and in subjecting the plate to pressure between two plates of larger mass, whereby the surfaces of the screen plate will be chilled and the plate will be maintained under pressure during the cooling operation, and finally, after the said plate has been cooled, in dipping it in a bath of water for the removal of the cyanide of potassium, substantially as set forth.

No. 2369Serial No. 12,069E.1031

Applicant.

Thomas A. Edison

Address.

Title Invt. in Stock House for Storing Material in BulkFiled April 9, 1900Examiner's Room No. 261

Assignee

Ass'g't Exec.

Recorded

Liber.

Page

Patent No.

Issued

ACTIONS.

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|----|-------------------------------|----|
| 1 | <u>Received May 5, 1900.</u> | 16 |
| 2 | <u>Amended Aug 29, 1900.</u> | 17 |
| 3 | <u>Revised Sept 10, 1900.</u> | 18 |
| 4 | <u>Amended Aug 7, 1901.</u> | 19 |
| 5 | <u>Revised Sept 16, 1901.</u> | 20 |
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- Handwritten notes:*
Hofman
Book
Sept 2
Abandoned
Sept 2-1902

DYER, EDMONDS & DYER,

31 Nassau Street,
NEW YORK CITY.

LAW OFFICES
OF
DYER, EDMONDS & DYER,
SPECIALTY,
Patents and Patent Causes,
31 NASSAU ST., NEW YORK.

RICHARD N. DYER,
REGISTRATION NO. 442,
SAMUEL O. EDMONDS,
REGISTRATION NO. 443,
FRANK L. DYER,
REGISTRATION NO. 444.

Petition.

To the Commissioner of Patents:

YOUR PETITIONER THOMAS A. EDISON,
a citizen of the United States, and resident of Llewellyn Park,
County of Essex, State of New Jersey, and whose post office address
is Llewellyn Park, New Jersey,

PRAYS THAT LETTERS PATENT MAY BE GRANTED TO HIM FOR THE

IMPROVEMENT IN STOCK HOUSES FOR STORING MATERIAL IN BULK,

(Case No. 1031)

SET FORTH IN THE ANNEXED SPECIFICATION; AND HE HEREBY APPOINTS DYER, EDMONDS
AND DYER (A FIRM COMPOSED OF RICHARD N. DYER, SAMUEL O. EDMONDS AND FRANK L.
DYER), OF NO. 31 NASSAU STREET, NEW YORK CITY, HIS ATTORNEYS, WITH FULL POWER OF
SUBSTITUTION AND REVOCATION, TO PROSECUTE THIS APPLICATION, TO MAKE ALTERA-
TIONS AND AMENDMENTS THEREIN, TO RECEIVE THE PATENT, AND TO TRANSACT ALL
BUSINESS IN THE PATENT OFFICE CONNECTED THEREWITH.

Thomas A. Edison

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be It Known that I, THOMAS A. EDISON, a citizen of the United States, residing at Ilewellyn Park, in the County of Essex and State of New Jersey, have invented a certain new and useful IMPROVEMENT IN STOCK HOUSES FOR STORING MATERIAL IN BULK (Case No. 1031), of which the following is a description:

In preparing bulk material, such as iron ore and cement, for storage in stock houses where it accumulates ready for use or for future operations, the material is first passed through a drying apparatus. A dryer designed for the proper drying of the material under ordinary conditions may not be of sufficient capacity to properly dry the material when the latter contains an unusually high percentage of moisture, assuming, of course, that the flow of material through the dryer is not reduced. Even when the material may be properly dried, and especially when it is more or less hygroscopic, it accumulates moisture on its way to the stock house and while it is stored therein. For these reasons, it is desirable that means should be provided, in connection with a suitable stock house or other place of storage, by which the material in bulk therein may be subjected to an effective drying operation, and it is the object of my present invention to provide a suitable stock house for the storing of material in bulk and by which this result will be secured.

My invention is illustrated in the accompanying drawing forming a part of this specification, and wherein I show diagrammatically a suitable stock house for the purpose, together with a dryer, and suitable conveying and distributing devices.

1 represents a dryer supplied with hot air from a furnace 2 and having inclined baffle plates 3 within its interior over which the material may flow in a series of thin streams, being subjected in its fall to ascending currents of hot air and products of combustion from the furnace 2. 4 is an elevator or conveyor by which the fine material in bulk, such as iron ore or cement, may be fed to the top of the dryer. The dried material from the dryer is deposited in the boot of an elevator 5 and carried up to a distributing conveyor 6 mounted in the top of a stock house 7. The conveyor 6 is of any suitable type, by which the material may be deposited in the stock house in a series of separate piles 8, as shown. At one side of the stock house is a furnace 9 having a fire-box 10 and opening into the interior of the stock house at 11, as shown. Air is admitted beneath the fire-box through an opening 12 having a damper therein, and air may be admitted above the fire-box through an opening 13, also provided with a damper. ^{whereby such air will be heated before entering the stock-house.} Circulation of air through the furnace may be effected by a blower connected below the fire-box, but preferably secured by an exhaust fan 14 connected with the stock house at the opposite end from the furnace.

In operation, the material, while it is being deposited in the stock house or after it has been deposited therein, will be subjected when necessary to the

AUG 29 1900.

25

effect of hot air and the products of combustion passing through and over the fire-box and out through the exhaust fan 14, whereby moisture will be effectively removed from such material.

AUG 29 1960

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1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

— 200 —

-4-

a flow of products of combustion and hot air from the
furnace, substantially as set forth.

THIS SPECIFICATION SIGNED AND WITNESSED THIS 28th DAY OF March 1900.

Thomas A. Edison

Witnesses:

1. J. F. Randolph
2. J. O. Boehme

Oath.

State of New Jersey } ss.:
County of Essex

THOMAS A. EDISON, THE ABOVE-NAMED

PETITIONER, BEING DULY SWORN, DEPOSES AND SAYS THAT HE IS A CITIZEN
OF THE United States, and a resident of Llewellyn Park, in the
County of Essex, and State of New Jersey,

THAT HE VERILY BELIEVES HIMSELF TO BE THE ORIGINAL, FIRST AND SOLE INVENTOR
OF THE IMPROVEMENT IN STOCK HOUSES FOR STORING MATERIAL IN BULK

DESCRIBED AND CLAIMED IN THE ANNEXED SPECIFICATION; THAT HE DOES NOT
KNOW AND DOES NOT BELIEVE THAT THE SAME WAS EVER KNOWN OR USED BEFORE
HIS INVENTION OR DISCOVERY THEREOF; OR PATENTED OR DESCRIBED IN ANY
PRINTED PUBLICATION IN THE UNITED STATES OF AMERICA OR ANY FOREIGN COUNTRY
BEFORE HIS INVENTION OR DISCOVERY THEREOF, OR MORE THAN TWO YEARS PRIOR
TO THIS APPLICATION; OR IN PUBLIC USE OR ON SALE IN THE UNITED STATES FOR
MORE THAN TWO YEARS PRIOR TO THIS APPLICATION, AND THAT NO APPLICATION
FOR FOREIGN PATENT HAS BEEN FILED BY HIM OR HIS LEGAL REPRESENTATIVES OR
ASSIGNS IN ANY FOREIGN COUNTRY.

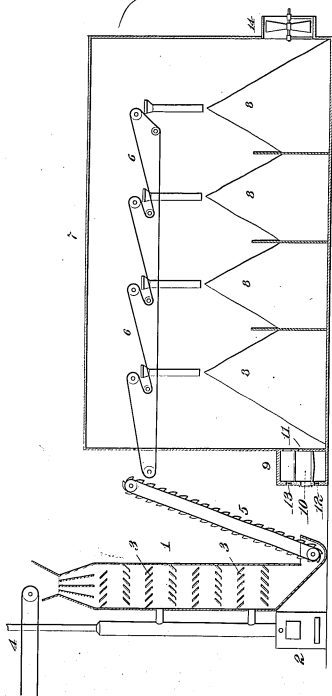
SWORN TO AND SUBSCRIBED BEFORE ME THIS 28th DAY OF March 1900.

(SEAL)

Thomas A. Edison
J. F. Randolph
NOTARY PUBLIC for
New Jersey

Case 2369
Dropper

61031
1 Sheet



Witnesses:

John H. Brown
Richard S. Brown

Inventor

Thomas A. Edison

by John C. Brown & John C. Brown

Att'ys.

2-161.

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

DEPARTMENT OF THE INTERIOR,

United States Patent Office,

Washington, D. C., Apr 9, 1900.

SERIES OF 1900.

No. 120,69



SIR:

I have to acknowledge the receipt of the petition, specification, oath, and
drawing of your alleged improvement in

Stock-House for Storing
Material in Bulk

with Fifteen Dollars as the first fee payable thereon.

The papers are duly filed, and your application for a patent will be taken
up for examination in its order.

You will be duly advised of the examination.

Very respectfully,

Case will be taken up for
examination in about one month.

C. H. Duell
Commissioner of Patents.

J. A. Edison

70 Dyer Edmonds 20 yrs

31 Nassau st

ny city

NOTE.—In order to constitute an application for a patent, the inventor is by law required to furnish his petition, specification,
oath, and drawings (where the nature of the case admits of drawings) and to pay the required fee.

No application is considered as complete, nor can any official action be had thereon, until all the parts, as here specified, are
furnished in due form by the inventor or applicant.

Any communication respecting this application should give the serial number, date of filing, and title of invention.

If payment is made by check or draft, the credits granted is subject to the collection of the same.

2-246.

Room No. 26
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

WASHINGTON, D. C., May 5, 1900.



T. A. Edison,

C/o Dyer, Edmonds & Dyer,

31 Nassau Street,

New York, N. Y.

Please find below a communication from the EXAMINER in charge of your application.

Ser No 12,069, filed April 9, 1900, for "Stock-House for Storing
Material in Bulk."

C. H. Druell
Commissioner of Patents.

This application has been taken up for examination.

The conveyor 6, should be more fully shown.

The blower mentioned in line 25, page 2, should be indicated
in the drawings.

Claim 3 appears to be unwarranted by the drawings.

The claims are all rejected for want of patentable novelty in
view of

Stone, No. 554,743, Feb. 18, 1896;
Prinz, No. 515,840, March 6, 1894;
Bardeen, No. 393,532, Nov. 27, 1888, and
Bell, No. 121,925, Dec. 19, 1871, in Driers - Houses and
Kilns.

In every application for a patent filed subsequent to December 31, 1897, responsive action must be made by the
Commissioner of Patents within three months after the date of filing of the application, or the application will become abandoned.

THOMAS A. EDISON
STOCK HOUSE FOR STORING MATERIAL
IN BULK
FILED APRIL 9, 1900
SERIAL NO. 12,069

ROOM NO. 261.

HON. COMMISSIONER OF PATENTS,

S I R :

A new drawing more fully illustrating the conveyor 6 will be filed before the allowance of the case.

Please amend as follows:-

Page 2, line 24, after "damper", insert -----whereby such air will be heated before entering the stock house-----.

Cancel claims 1, 2, 3 and 4, and substitute the following:-

-----1. In a stock house for storing material in bulk, the combination with a substantially closed storage chamber and a conveyor mounted therein near its upper part for distributing material in bulk in the storage chamber in a plurality of piles, of a furnace mounted adjacent to the storage chamber, and means for causing products of combustion from such furnace to enter the stock house and to directly engage the piles of material stored therein, substantially as and for the purposes set forth.

2. In a stock house for storing material in bulk, the combination with a substantially closed storage chamber and a conveyor mounted therein near its upper part for distributing material in bulk in the storage chamber in a plurality of piles, of a furnace mounted adjacent to the storage chamber, means for causing products of combustion from such furnace to enter the stock house and to directly engage the piles of material stored therein, and an exhaust fan

*Examined
Aug 1901*

Same

located in the stock house opposite to said furnace for creating a draft through the stock house and furnace, substantially as and for the purposes set forth.

Same

3. In a stock house for storing material in bulk, the combination with a substantially closed storage chamber and a conveyor mounted therein near its upper part for distributing material in bulk in the storage chamber in a plurality of piles, of a furnace mounted adjacent to the storage chamber, means for causing products of combustion from such furnace to enter the stock house and to directly engage the piles of material stored therein, and an air opening into the furnace above the fire-box thereof, whereby heated air from the furnace may also enter the stock house to effect a drying operation.-----

The claims above presented are limited to a stock house intended specifically for use in connection with the storage of material in bulk, and, therefore, distinguished from drying houses or kilns for drying malt and for curing meat and tobacco, as suggested by the several references.

Very respectfully,

THOMAS A. EDISON,

By _____

His Attorneys.

New York, August 29, 1900.

5-671.

Room No. 261.
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

WASHINGTON, D. C., Sept. 10, 1900.

Thomas A. Edison,
C/o Dyer, Edmonds & Dyer,
31 Nassau Street,
New York, N. Y.



Please find below a communication from the EXAMINER in charge of your application.

Ser No 12,069, filed April 9, 1900, for "Stock-House for Storing
Material in Bulk."

C. H. Duell
Commissioner of Patents.

This application, as amended, has been taken up for action.

The claims are rejected for want of invention in view of the
references of record, and patent to Merry No. 230,144, July 20,
1880, in Storehouse Conveyers.

THOMAS A. EDISON

STOCK HOUSE FOR STORING MATERIAL IN BULK

FILED APRIL 9, 1900

SERIAL NO. 12,069

ROOM NO. 261.

HONORABLE COMMISSIONER OF PATENTS,

S I R : —

Please amend as follows:

Change the title of invention to ----- Apparatus
for Drying and Storing Material in Bulk -----

Erase the claims and substitute:

----- 1. In an apparatus for drying and storing material in bulk, the combination with a dryer and an elevator extending therefrom, of a substantially closed storage chamber, a conveyor mounted therein near its upper part for distributing material in bulk in the storage chamber in a plurality of piles, said conveyor receiving material from said elevator, a furnace mounted adjacent to the storage chamber, and means for causing products of combustion from such furnace to enter the storage chamber and to directly engage the piles of material stored therein, substantially as and for the purposes set forth.

2. In an apparatus for drying and storing material in bulk, the combination with a dryer and an elevator extending therefrom, of a substantially closed storage chamber, a conveyor mounted therein near its upper part for distributing material in bulk in the storage chamber in a plurality of piles, said conveyor receiving material from said elevator, a furnace mounted adjacent to the storage chamber, means for causing products of combustion from such furnace to enter the storage chamber and to directly engage the piles of material stored therein, and an exhaust fan located

in the storage chamber opposite to said furnace for causing a draft through the storage chamber and furnace, substantially as set forth.

3. In an apparatus for drying and storing material in bulk, the combination with a dryer and an elevator extending therefrom, of a substantially closed storage chamber, a conveyor mounted therein near its upper part for distributing material in bulk in the storage chamber in a plurality of piles, said conveyor receiving material from said elevator, a furnace mounted adjacent to the storage chamber, means for causing products of combustion from such furnace to enter the storage chamber and to directly engage the piles of material stored therein, and an air opening in the furnace above the fire box thereof, whereby heated air from the furnace may also enter the storage chamber to effect a drying operation, substantially as set forth.-----

The claims above presented are drawn with special reference to the state of the art as disclosed by the references of record, and it is hoped that they may be allowed.

Very respectfully,

THOMAS A. EDISON,

By _____

His Attorneys.

New York, August 7, 1901.

Room No. 2562
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

2-246.

All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

WASHINGTON, D. C., Sept. 6, 1901.

T. A. Edison,
C/o Dyer, Edmonds and Dyer,
Orange, N. J.



Please find below a communication from the EXAMINER in charge of your application:
Ser No 12,069, filed April 9, 1900, for "Stock House for Storing
Material in Bulk."

H. J. Allen
Commissioner of Patents.

This application, as amended Aug. 8, 1901, has been taken up
for examination.

The claims are rejected upon the references of record, partic-
ularly in view of the patents to Edison, No. 660,845, Oct. 30, 1900,
and No. 662,063, Nov. 20, 1900, in Mortar Mixers.

Richard A. Dyer
Samuel H. Edwards
Frank L. Dyer

Law Offices
Dyer, Edmunds & Dyer
Specialty: Patents & Patent Causes.
31 Nassau Street,
New York.

Cable Address
"Inverness-New York"
Rt. No. 2910 East.

THOMAS A. EDISON
SUBJECT-MATTER: *Stock House for storing material in bulk*
FILED
SERIAL NO. *Apr. 9, 1890*
EXAMINER'S ROOM NO. *2068*
267

HONORABLE COMMISSIONER OF PATENTS,

S I R : —

In the above entitled application, please address further communications to us at our office, No. 31 Nassau Street, New York City.

Very respectfully,

Dyer, Edmunds & Dyer
Attorneys of Record.

Case No. 1031

Abandoned.

Filed April 9, 1900.

IMPROVEMENTS IN STOCK HOUSES FOR STORING MATERIALS IN BULK.

Claims.

1. In a stock house for storing material in bulk, the combination of a storage chamber, a furnace adjacent thereto, and means for causing air heated by said furnace to be forced through the chamber into direct contact with the material stored therein, substantially as set forth.

2. In a stock house for storing material in bulk, the combination of a chamber in which the material is stored, a furnace opening into said chamber, and means for forcing through the chamber and into contact with the material stored therein the products of combustion from said furnace, substantially as set forth.

3. In a stock house for storing material in bulk, the combination of a chamber in which the material is stored, a furnace opening into said chamber, means for forcing through the chamber and into contact with the material stored therein the products of combustion from said furnace, and an air supply for admitting air above the furnace, whereby such air will be heated before entering the storage chamber, substantially as set forth.

4. In a stock house for storing material in bulk, the combination of a chamber in which the material is stored in bulk, a furnace opening into said chamber at one side, and an exhaust fan connected to the said chamber at the opposite side for maintaining through the

Case No. 1031 -2-

chamber a flow of products of combustion and hot air from the furnace, substantially as set forth.

Folio No. 4Serial No. 1845

Applicant.

Address.

T. C. (C 1032)

Title

Method of Burning Patent Leather
via C. H. Materials

Filed

April 3, 1904Examiner's Room No. 247 008

Assignee

Ass'g't Exec.

Recorded

Liber

Page

Patent No. 759,356

Issued

May 10, 1904

ACTIONS.

1. Received Aug 13, 1904 16
2. Received Oct 15, 1904 17
3. Received Aug 13, 1904 18
4. Received Aug 13, 1904 19
5. Received Aug 13, 1904 20
6. Received Aug 13, 1904 21
7. Received Aug 13, 1904 22
8. Received Aug 13, 1904 23
9. Received Aug 13, 1904 24
10. Received Aug 13, 1904 25
11. Received Aug 13, 1904 26
12. Received Aug 13, 1904 27
13. Amended Feb 23, 1904 28
14. Amended Apr 1, 1904 29
15. 30

FRANK L. DYER,

Counsel,

ORANGE, NEW JERSEY.

1

The object of this invention is to increase the output of Portland Cement Clinker in that class of burners called the "Rotary Cylinder burner".

The invention consists in a method of burning a greater amount of fuel in such cylinders without raising the temperature of any part above the greatest temperature which it is ^{usually} subjected to.

The invention further consists in the mechanism for ~~accomplishing the carrying~~ out the improved method.

2

The Rotary cylinder burner now in common use for burning Portland Cement materials consists of a cylinder about 60 feet in length, lined with fire brick and having an inside diameter from 4 to 5 feet, ~~at one end~~ and the cylinder is ~~rotated~~ set on a slight incline ~~which~~. The powdered material being fed in at one end & the cylinder rotated the powder by reason of the inclination

of the cylinder advances
~~to the other end~~ through
 the whole length, the
 speed of progression depending
 upon the speed of rotation of
 the exit or lowest end
 of the cylinder ends in a
 closed chamber provided
 with an orifice at the bottom
 for the burned clinker to
 make its exit -

There is inserted in this
 chamber in an axial line
 with the bore of the rotating
 cylinder a nozzle through
 which powdered coal

mixed with compressed air
 is situated, this ^{air} nozzle
 projects the powdered coal
 into the cylinder. Total
 combustion of the coal takes
 place over ^{perhaps 20} feet of the
 lower end of the same -

The very high temperature necessary
 for the final clinking of
 the cement takes place
 however in a much more
 contracted area perhaps
 8 feet. of the length of the
 cylinder.

With the above described
 cylinders about 2400 lbs
 of clinker is produced

5
Each hour. ~~and the temperature~~
with an expenditure of
about 800 lbs of coal dust
and the ~~temperature~~ maximum
temperature reached at
the highest point is perhaps
3000 deg fahr -

The gases of combustion are
swept forward in the cylinder
+ impart their heat to the
advancing material +
find exit through the
chimney at the extreme
end where the cold
material is fed into the
cylinder -

6
The air for projecting the
powdered coal through
the nozzle into the cylinder
being insufficient to
effect its complete
combustion natural draft
~~the~~ the additional air
necessary to effect complete
combustion finds entry through
the orifice where the burst
clinker leaves the cylinder
the chimney producing the
difference of pressure to
move the air

7

It will be seen that the small amount of material which passes through the cylinder has so small a Capacity for ~~heat~~ the absorption of heat when it enters the contracted zone of high temperature that it effects very little cooling & were it not there the temperature in this zone would not be ~~materially~~ raised but a few degrees.

In practice it is necessary that the temperature of the high temperature zone

8

should not vary except in narrow limits, if the temperature is too low the chemical reaction of the various ingredients which ~~go to~~ make up good cement does not take place or only partially so, whereas if the temperature is too high the clinker is nearly melted & is then overburnt & other undesirable chemical reactions take place making an inferior cement.

~~If the material is in the cylinder the~~

9

If with the proper amount of coal and air adjusted to produce the proper Chinking temperature the amount of material fed into the cylinder was ~~constant~~ made twice as great and the coal & air made twice as great. The result would be that there being twice as much coal burnt in the same space the temperature would ~~rise~~ rise in the high temperature zone so high

10

that the chinkers would be melted and the fire brick itself would suffer injury. The extra amount of material not being able to materially lower the temperature in the hot zone hence with the usual cylinder as now arranged and operated the output is nearly fixed - cannot be exceeded.

I have found a method whereby the output can be greatly increased

~~This~~ This I do by altering the conditions of Combustion, and extending the area of high temperature over a greater length of the cylinder whereby I am enabled to burn a very much greater amount of fuel ~~and~~ and carry through a chamber a very ^{much} greater amount of "Exhaust" material without raising the temperature in any part

of the hot zone above the proper churning temperature.

I accomplish this result by causing two or more combustion zones within the cylinder.

To illustrate generally two nozzles are used.

one nozzle ~~has~~ is supplied with powdered coal and air at say 50 lbs pressure which serves to throw its fuel with great velocity into the cylinder so that the center of

its zone of combustion is
~~30~~ say 25 feet from
 the end of the cylinder
~~and by~~ the 2nd
 nozzle with coal and
 air at ^{only} 20 lbs pressure
 throws the coal so there
 is established
 another zone the
 center nearer the end
 of the cylinder. The
 column of air and coal
~~near the nozzle~~
 account of its great
 velocity, goes into the
 cylinder for considerable

distance before it spreads
 out + its temperature reaches
 the combustion point.
 by means of several
 nozzles with air at
 different pressures + with
~~approximately~~ the proper
 amount of coal fed to
~~each nozzle~~ each
 a very large amount of
 coal can be burned
 and the clinkering temperature
 spread over ~~up to~~ 50
 large an area that the
~~output of~~
 number output of

15

clinker can be vastly increased ~~at the~~
 This effects a great saving in investment and labor of operating the cylinder per ton of output, ~~but~~ ^{another} saving is in the diminution of the amount of coal necessary to burn a ton of clinker which saving is due to diminished loss by radiation - In carrying out this invention it is best that the length of

16

March 28 1912

of the cylinder ~~is shown~~
 to be increased ~~to 90 feet~~
 from 60 to 90 feet to get the best economy of coal consumption. Such a cylinder with regenerative devices for saving heat is shown in my application No. —

Dyer

Here follows drawing
 & I will describe
 drawing - then you
 can if necessary devise
 the application for method &
 application claim

Folio No. 5

Serial No. 13406

Applicant.

Address.

J. C. (18-1023)

Title *Preparation for Burning Portland Cement Clinker
in Other Materials.*Filed *April 19, 1904*Examiner's Room No. *207 308*

Assignee

Ass'g't Exec.

Recorded

Liber

Page

Patent No. *759,357*

Issued

May 10, 1904

ACTIONS.

- | | |
|---|---------------------------------|
| 1. <i>Rejected Jan 23, 1901</i> | 16. <i>Issued Feb 20, 1904</i> |
| 2. <i>Amended Jan 12, 1901</i> | 17. <i>Amended Feb 23, 1904</i> |
| 3. <i>Rejected Jan 6, 1901</i> | 18. <i>Allowed Mar 22, 1904</i> |
| 4. <i>J. C. Jan 1, 1902</i> | 19. |
| 5. <i>Rejected Jan 21, 1902</i> | 20. |
| 6. <i>J. C. Jan 29, 1903</i> | 21. |
| 7. <i>Reopened to Jan 29, 1903</i> | 22. <i>Done</i> |
| 8. <i>Appellate Brief filed Feb 9, 1904</i> | 23. |
| 9. <i>Appellate Brief filed Mar 10, 1904</i> | 24. |
| 10. <i>Appellate Brief filed Mar 10, 1904</i> | 25. |
| 11. <i>Appellate Brief filed Mar 10, 1904</i> | 26. |
| 12. <i>Reopened to Feb 20, 1904</i> | 27. |
| 13. <i>Amended August 12, 1903</i> | 28. |
| 14. <i>Rejected Sep 21, 1903</i> | 29. |
| 15. <i>Amended Dec 3, 1903</i> | 30. |

FRANK L. DYER,

Counsel,

ORANGE, NEW JERSEY

Richard H. Dyer,
Samuel O. Edmunds,
Frank L. Dyer.

Law Offices
Dyer, Edmunds & Dyer,
Specialty: Patents & Patent Causes.
31 Nassau Street,

Cable Address
Venue, New York.
Tel. No. 2210 C&E

New York. April 17, 1900.

Thomas A. Edison, Esq.,
Orange, N.J.

Dear Sir:-

Change
Re

We duly received the application papers on your improved method of and apparatus for burning Portland cement clinker and other materials. We have made the changes suggested by you in both specifications. We note that the claims in the method case do not require change, and, therefore, beg to return herewith for your use a copy of these claims. In the apparatus case, we have referred in the specification to the fact that one of the nozzles is preferably longer than the other, so as to allow the inertia of the fuel to be overcome, whereby the fuel will reach the same velocity as the air when both leave the nozzle. We have also referred in the apparatus case to the fact that the feed does not leak air, and that by changing the speed of feed the material can be regulated. We have erased the word "axially" from the claims, as referring to the location of the nozzles, and have used the expression "a plurality of nozzles projecting longitudinally with respect to the burner". We have also introduced two additional claims, numbered five and six, and beg, therefore, to enclose a copy

(T. A. E., 2)

of the claims on the apparatus as they have been rewritten by us. The cases will be filed immediately, and blue prints of the drawings will be sent you as soon as received from the Patent Office.

Yours very truly,

Alfred E. Edwards

(F.L.D.)

Enclosure.

No. 2379E 1035Serial No. 15453

Applicant.

Thomas A. EdisonAddress. ✓Title Process of making metallic duplicate Phonograph Records.Filed May 4, 1900.Examiner's Room No. 219

Assignee _____

Ass'g't Exec. _____

Recorded _____

Liber _____

Page _____

Patent No. 657527 Issued September 11, 1900.

ACTIONS.

1. Replied June 8, 1900. 16
2. Amended June 11, 1900. 17
3. Allowed July 2, 1900 18
4. Final fee paid Aug 17, 1900 19
5. _____ 20
6. _____ 21
7. _____ 22
8. _____ 23
9. _____ 24
10. _____ 25
11. _____ 26
12. _____ 27
13. _____ 28
14. _____ 29
15. _____ 30

DYER, EDMONDS & DYER,

31 Nassau Street,

NEW YORK CITY.

1. The first step in the vacuum deposit
copper method is the removal of the
oxide. Then coat copper with paraffin
coating, with vacuum deposit the same
on inside with copper - then plate off
outer coat down to vacuum deposit then
back off vacuum coat.

1035

Apply in U.S. Est. with given data as
to other metals and proper acids -

Process for making metallic phonograph records -

- 1st Record on Wax blank
- 2nd Vacuum deposit
- 3rd plating same with Copper $\frac{1}{32}$ thick
Melt out cylinder or turn out.
- 4th then coating this Copper outside
with a waterproofing cover, so silver
won't plate on outside
- 6th Immersing Cylinder in a
Silver Bath & plating it inside
with silver ~~on the inside~~
to say $\frac{1}{32}$ thick then taking
from bath, & eating off the Copper
with Hydrochloric acid which
does not attack the Silver -
this leaves a Silver record which
could be backed up by plaster paraffin or
cement.

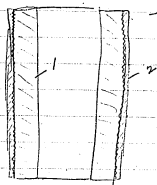


Fig 1

Σ
1035

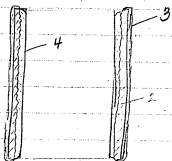


Fig 2

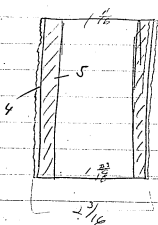


Fig 3

Dyer Ed.

1032

7/11/1900

Yr

~~Dear~~ Will you inform

if I have taken out
foreign Countries the
allowed applications for



Making Duplicate Phonograph
Records filed May ^{4th} 1900 -

If I have then let the patent
issue, If I have not then
prepare papers & take it out
in England France Belgium
& Germany & Canada

and withheld taking out
American patent till
foreign is safe -
Please answer -

T & E Edison

[FROM JOHN ROBERT TAYLOR]

July 12, 1900.

Thomas A. Edison, Esq.,
Orange,
N.J.

Dear Sir,-

We have your pencil memorandum of the 11th inst. in re United States allowed application for patent on duplicate phonograph records filed May 4, 1900. In reply we beg to state that no foreign patents have been applied for on this device, and in accordance with your instructions, we shall at once prepare papers and forward them to you for signature, in the meantime withholding the issue of the United States patent.

Yours truly,

(J.R.T.)

No. 2383E. 1036Serial No. 15874

Applicant.

Thomas A. Edison

Address.

Title Process of duplicating Phonograph RecordsFiled May 8, 1900.Examiner's Room No. 219

Assignee

Ass'g't Exec.

Recorded

Liber

Page

Patent No. 667662 Issued Feb. 5, 1901

ACTIONS.

1. Reported June 12/1900. 16
2. Amended Aug 1/1900. 17
3. Reported Sept 11/1900. 18
4. Amended Nov 2/1900. 19
5. Reported Nov 20, 1900. 20
6. Appeal to Board Nov. 28, 1900. 21
7. Examiner's statement filed Nov 17, 1900. 22
8. Preparing bill for Jan 9, 1901 at 2 P.M. 23
9. Appeal argued by J. L. A. 24
10. Brief Jan 9, 1901. 25
11. Edison Jan 12, 1901. 26
12. 27
13. Allowed. - Jan 17, 1901. 28
14. Final Pa paid by L.W. Jan 17/01. 29
15. 30

DYER, EDMONDS & DYER,

31 Nassau Street,
NEW YORK CITY.

103^b/₁

Dyer -

Apr 25 1900
748

The object of this invention is
to produce ~~the~~ rapid & economical
production of Duplicates of
Photographic Records



The Invention consists in ~~forming~~^{causing} a
matrix as described in my
application _____

to act as a mould for receiving a
matter material which solidifying
against the inner face of said
matrix gives a perfect impression
of the sound waves of the matrix
surface & when contracting after
solidification leaves it free of the
matrix so it can be ~~from~~ extracted
from the same - The material

for forming the records in this manner
~~is~~ is preferably an alkaline soap
~~to which~~ or a combination of several
 soaps to which has been added
 a material not affected by water
 such as Ceresin to prevent the
 action of chemistries of the
 atmosphere upon the soap

In the figure a jar is heated
 continuously & contains the material
 in a melted condition to the
 dotted line or thereabouts
 a cylinder is secured to the
 bottom of this jar - at ^{or near} the
 bottom of this cylinder
 are holes to permit the liquid

material to pass into the cylinder
 & over the top of the piston
 when it is on the bottom,

The Matrix is laid in the top end of
 the cylinder ~~which~~ fitting closely

The matrix has an extension X

which serves to permit excess of
 liquid to extend above the
 matrix & also to guide the
 plunger = Supposing the
 Matrix to be cold the plunger
 whose piston fits well in
 fixed cylinder is forced down
 into the liquid which passes

4

out the cylinder by the holes at the bottom, the piston on striking the bottom goes below the holes when the liquid runs in.

The loss on the plunger being then soon reaches the temperature of the liquid. The matrix being at atmospheric temperature or preferably cooled below that point, is now ready for the upward movement of the plunger. This forces enough liquid into the matrix & above it into the extension to feed the

~~Contracting~~ The record when
 Contracting - The liquid on touching
 the cold surface of the matrix
 & almost instantaneously chills & becomes
 solid & the chilling takes place
 very rapidly until the liquid in
 contact with the inner core
 becomes solid. The plunger & matrix
 is then removed & allowed to cool
 by an air blast & ~~the~~ to a point
 where it has ~~contracted~~ away from
 the matrix so as to permit it to
 be removed by forcing down the
 plunger. Then the inner core is
 removed while ~~the material~~ before
 the inner part of the wax cylinder
 has contracted sufficiently to

pinch the Core. The conductivity for heat of the material being very slow the outside surface of the cylinder becomes hard set while the inner portion next the Core is ~~remained~~ in a plastic Condition -

The record is then dressed at the ends, reamed internally to size and ready for use.

When Records are made by this process the contraction of the material is very great ~~when~~ from its first set where the

7

impression of the matrix in the wax is produced to Normal temperature, hence it is necessary that the original records from which the matrix is made should ~~have~~ be taken on a phonograph having a different number of threads on its feed screw than the instrument upon which the records are to be finally used. If the record is to be used on a machine having 100 threads per inch then the original phonograph must have such a number of

8

of threads that the record ^{after} ~~and~~ shrinking shall have 100 threads per inch or approximately near that number the modern reproducing apparatus permitting of a variation of at least one thread in 4 inches.

The number of threads to be used for taking the original record from which the matrix is to be made will depend upon the contractibility of the material used & will have to be determined for each kind -

9
Claim this way forming record
from matrix -

also Matrix record different no
threads than the matrix upon which
record is to be used to ~~form~~
allow for contraction,

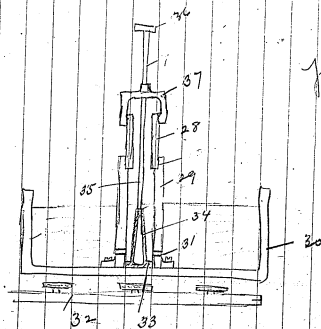
also the apparatus —
<sup>that confined to this particular form as there
are many types</sup>
The upward rapid filling of the
mould from below —

Etc =

This will be a part of
foreign as well as US ~~application~~

I will be back Monday
~~so~~ probably stop at
Lab till Tuesday - you
can then come over &
we will finish foreign
Matrix potential & also
new US in Matrix deep
principles — E. L. L.

~~1006~~
1006



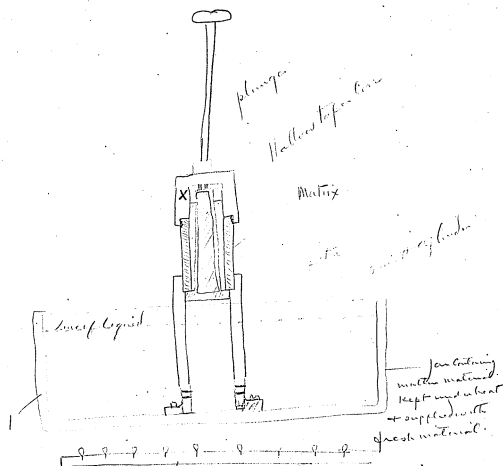


Fig 2

Graphophone Record.

Master made in New York, on soft wax. From each master a single record is made, one only for each edition. From the master mold, a number of duplicate ^{is made} made by dipping and compressing as in Miller's patent process, with water jacket. These duplicates used as masters for several matrices from which commercial duplicates are made - also good plastic at first, but soon become grainy by gas dissolving off. Records seldom change -

First tray containing eight molds immersed in wax at 400° and kept for five minutes. Then removed and dipped in lukewarm

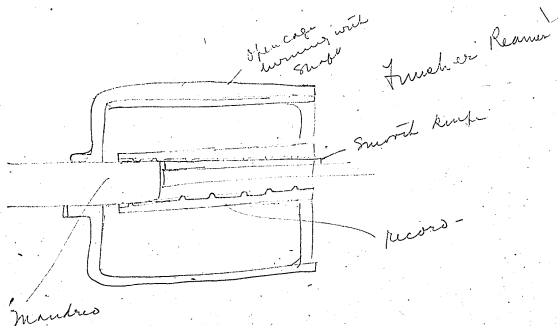
water for five minutes, making additional ^{pressures} ~~pressures~~ in to allow for shrinkage. ^{Now cone} cones lifted out.

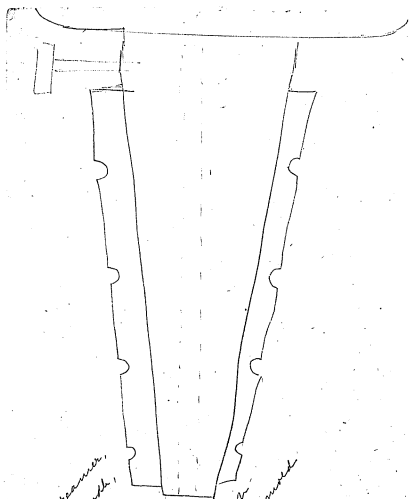
Then rough reamed. Then put aside to cool, and shrunk out.

Duplicate about two inches longer than Edison's, to allow space for mandrels to turn them in further reamers. Then rough edged -

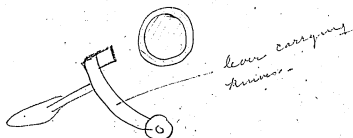
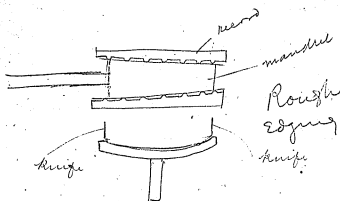
Then, finishing reamer, - Finally, further edged - exactly like Edison.

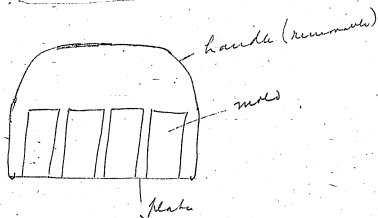
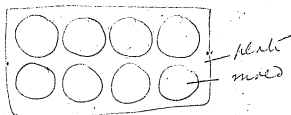
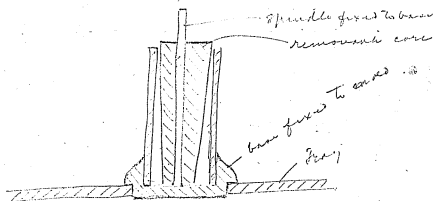
Wax composed of stearic acid, heated to boiling point, then paraffine added, then "lign" (composed of fats, washing soda etc.), and finally "trap-rose", for hardening, probably camphor wax.





Rough hammer
guides by hand,
and having
radiused as-
pecticles
hammer.
Records rough
surfaces in metal





Night average 16000.

Discards 9000

Night output 7000

Day average 20000.

Discards 7000

Day output 13000.

No. 2386E. 1039Serial No. 20556

Applicant.

Thomas A. EdisonAddress. ☒Title. Apparatus for Coating Monograph Record
or other Articles.Filed June 16, 1900.Examiner's Room No. 149

Assignee _____

Ass'g't Exec. _____

Recorded _____

Liber _____

Page _____

Patent No. _____

Issued _____

ACTIONS.

1. Report July 17, 1900. 16
2. Amended July 18, 1901. 17
3. Report July 13, 1901. 18
4. Amended June 3, 1902. 19
5. Report June 27, 1902. 20
6. 21
7. 22
8. 23
9. 24
10. 25
11. 26
12. 27
13. 28
14. 29
15. 30

DYER, EDMONDS & DYER,

31 Nassau Street,
NEW YORK CITY.

Examination fully covered
process of 20555
by E. 1039
Dr. H. D.

LAW OFFICES
OF
DYER, EDMONDS & DYER,
SPECIALTY,
Patents and Patent Causes,
31 NASSAU ST., NEW YORK.

RICHARD N. DYER,
REGISTRATION NO. 409.
SAMUEL O. EDMONDS,
REGISTRATION NO. 41.
FRANK L. DYER,
REGISTRATION NO. 260.

Petition.

To the Commissioner of Patents:

YOUR PETITIONER THOMAS A. EDISON,
a citizen of the United States, residing at Ijewellyn Park,
County of Essex, and State of New Jersey, and whose Post Office
address is at said Ijewellyn Park, Essex County, New Jersey,
PRAYS THAT LETTERS PATENT MAY BE GRANTED TO HIM FOR THE

APPARATUS FOR COATING PHONOGRAPH RECORDS OR OTHER ARTICLES
(Case No. 1039),

SET FORTH IN THE ANNEXED SPECIFICATION; AND HE HEREBY APPOINTS DYER, EDMONDS
AND DYER (A FIRM COMPOSED OF RICHARD N. DYER, SAMUEL O. EDMONDS AND FRANK L.
DYER), OF NO. 31 NASSAU STREET, NEW YORK CITY, HIS ATTORNEYS, WITH FULL POWER OF
SUBSTITUTION AND REVOCATION, TO PROSECUTE THIS APPLICATION, TO MAKE ALTERA-
TIONS AND AMENDMENTS THEREIN, TO RECEIVE THE PATENT, AND TO TRANSACT ALL
BUSINESS IN THE PATENT OFFICE CONNECTED THEREWITH.

Thomas A. Edison

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be It Known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the County of Essex, and State of New Jersey, have invented a certain new and useful APPARATUS FOR COATING PHONOGRAPH RECORDS OR OTHER ARTICLES (Case No. 1039), of which the following is a specification:

In an application filed on even date herewith I describe a process particularly adapted for coating phonograph records with an infinitesimally thin film of metal offering a conducting base for a more rapid deposit by electrodeposition, whereby an absolutely accurate matrix or mold of a phonograph record can be secured, said process being also adapted for other uses, as explained, and being intended as a specific improvement upon the process described in my patent No. 526,147, dated September 18, 1894.

My said process consists in maintaining the object to be plated, and rotating the same, in an exhausted chamber, and in establishing from an electrode of which the deposit is to be made and a second electrode, made preferably also of the same metal, a silent or brush electrical discharge, whereby the metal will be vaporized and caused to deposit upon the object, the process also consisting specifically in magnetically rotating the object to be coated from the exterior of the exhausted chamber.

My present invention relates to an improved apparatus for carrying this process into effect, and the apparatus is illustrated in the accompanying drawing, showing the same in section.

1 represents a base, and 2 a vacuum chamber or jar fitted with an airtight joint upon the base. 3 is a pipe connected to the interior of the jar and by means of which air may be exhausted therefrom in any suitable way, as by an air pump or by a Sprengel vacuum pump. When the proper vacuum has been secured, it is retained by closing a valve 4 in the pipe 3 or by maintaining the vacuum pump in constant operation. 5, 5 represent two supporting arms made preferably of glass and leading up within the interior of the jar or vacuum chamber, said supporting arms being preferably further insulated from the base by means of hard rubber insulating bushings 6. A conductor 7 leads up within each of the supporting arms and is formed with a hook 8 at its upper end. Suspended from each hook is an electrode 9 of the metal to be deposited upon the object to be coated, such electrodes being preferably in the form of thin wires or strips of foil of such metal. For the making of a vacuous deposit upon phonograph records, the electrodes 9 are made preferably of strips of gold foil. 10 is a standard mounted between the electrodes and carrying a rotatable head 11 at its upper end, said head having a tapered periphery from which is supported a phonograph record 12 having a tapered bore, as is common. The record may be supported in any other way, and when the process is used for the coating of other articles than phonograph records such

articles will be properly supported from the rotatable head in any desired manner. 13 is an iron or steel armature carried by the rotatable head 11 and adapted to be attracted by a magnet 14 rotatable on the exterior of the vacuum chamber. An ordinary horseshoe magnet may be conveniently used for the purpose. I illustrate the magnet 14 as being supported by an arm 15 from a shaft 16 carried by a suitable bracket 17 and rotated by a pulley 18.

In operation, a silent or brush discharge is established between the electrodes 9, 9, in any suitable way, as, for example, by connecting the conductors 7 with the secondary of a large induction coil 19, the primary 20 of which is included in a vibrator 21 and a source of current 22. The brush or silent discharge being established between the electrodes and the magnet 14 being rotated on the exterior of the vacuum chamber to attract the armature 13, the object to be coated will be rotated between the electrodes, while the metal vaporized by the discharge will be deposited upon said object in the form of an infinitesimally thin and practically uniform film. When the object to be coated is a phonograph cylinder, the latter after being coated, is removed, and may be placed in a plating bath, so as to receive a heavier deposit by a process of electrodeposition, after which the original record is removed, either by melting it out or by shrinking it from the deposited metal, whereby an absolutely accurate matrix or mold of the original record may be secured.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is, as follows:

1. An improved apparatus for securing a coating of a metal on an object, consisting of an exhausted chamber in which the object to be coated is supported, an electrode of the metal to be deposited and a second electrode in said chamber, and means for establishing between said electrodes a silent or brush electrical discharge, substantially as set forth.

2. An improved apparatus for securing a coating of a metal on an object, consisting of an exhausted chamber in which the object to be coated is supported, an electrode of the metal to be deposited and a second electrode in said chamber, means for establishing between said electrodes a silent or brush electrical discharge, and means for rotating the object, substantially as set forth.

3. An improved apparatus for securing a coating of a metal on an object, comprising an exhausted chamber containing the object to be coated, two electrodes in said chamber made of the metal to be deposited, said electrodes being placed diametrically of the object, and means for establishing between said electrodes a silent or brush electrical discharge, substantially as set forth.

4. An improved apparatus for securing a coating of a metal on an object, comprising an exhausted chamber containing the object to be coated, two electrodes in said chamber made of the metal to be deposited, said electrodes being placed diametrically of the object,

means for establishing between said electrodes a silent or brush electrical discharge, and means for rotating the object, substantially as set forth.

5. An improved apparatus for securing a coating of a metal on an object, comprising an exhausted chamber, means within the chamber for securing a vacuum deposit on the object, means for supporting the object within the chamber, an armature connected to ^{said support} ~~the object~~, a magnet on the outside of the chamber for attracting said armature, and means for rotating the magnet with respect to the chamber, substantially as set forth.

6. An improved apparatus for securing a coating of a metal on an object, comprising an exhausted chamber, two electrodes within said chamber on opposite sides of the object to be coated, an induction coil the secondary of which is connected to said electrodes, and means for energizing said induction coil for producing a silent or brush discharge between said electrodes, substantially as set forth.

7. An improved apparatus for securing a coating of a metal on an object, comprising an exhausted chamber containing the object to be coated, a pair of insulating supports within the chamber, electrodes carried by said ^{a support for the object between said electrodes} supports and made of the metal to be deposited, and means for establishing a silent or brush discharge between said electrodes, substantially as set forth.

THIS SPECIFICATION SIGNED AND WITNESSED THIS 15th DAY OF May, 1900.

Thomas A. Edison

Witnesses:

1. J. F. Randolph
2. H. S. Malloy

Oath.

State of New Jersey } ss.:
County of Essex

THOMAS A. EDISON, THE ABOVE-NAMED

PETITIONER, BEING DULY SWORN, DEPOSES AND SAYS THAT HE IS A CITIZEN
OF THE United States, residing at Ilwellyn Park, County of
Essex, and State of New Jersey,

THAT HE VERILY BELIEVES HIMSELF TO BE THE ORIGINAL, FIRST AND SOLE INVENTOR
OF THE APPARATUS FOR COATING PHONOGRAPH RECORDS OR OTHER ARTICLES
(Case No. 1039),

DESCRIBED AND CLAIMED IN THE ANNEXED SPECIFICATION; THAT HE DOES NOT
KNOW AND DOES NOT BELIEVE THAT THE SAME WAS EVER KNOWN OR USED BEFORE
HIS INVENTION OR DISCOVERY THEREOF; OR PATENTED OR DESCRIBED IN ANY
PRINTED PUBLICATION IN THE UNITED STATES OF AMERICA OR ANY FOREIGN COUNTRY
BEFORE HIS INVENTION OR DISCOVERY THEREOF, OR MORE THAN TWO YEARS PRIOR
TO THIS APPLICATION; OR IN PUBLIC USE OR ON SALE IN THE UNITED STATES FOR
MORE THAN TWO YEARS PRIOR TO THIS APPLICATION, AND THAT NO APPLICATION
FOR FOREIGN PATENT HAS BEEN FILED BY HIM OR HIS LEGAL REPRESENTATIVES OR
ASSIGNS IN ANY FOREIGN COUNTRY.

Thomas A. Edison

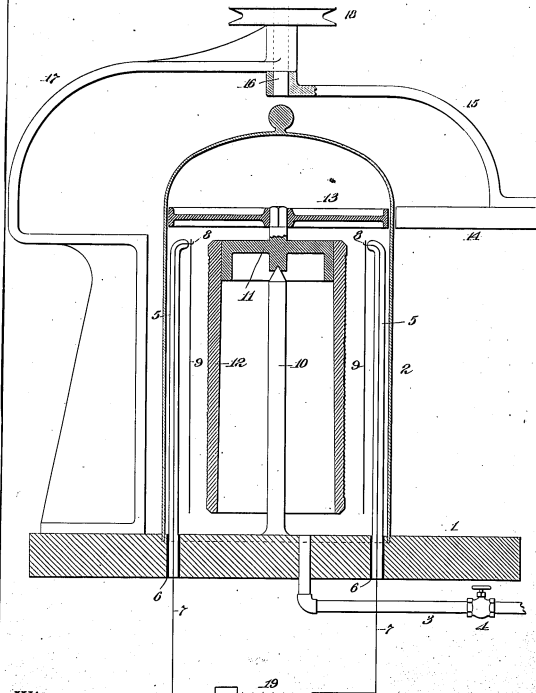
SWORN TO AND SUBSCRIBED BEFORE ME THIS 15th DAY OF May, 1900

(SEAL)

J. F. Randolph
NOTARY PUBLIC
H. S. Malloy

Dropped

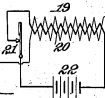
E1039
1st class



Witnesses:

James F. Coleman

John R. Taylor



Inventor

Thomas A. Edison

John Edwards

Att'ys.

1039
2-161.

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

DEPARTMENT OF THE INTERIOR,

United States Patent Office

Washington, D. C., June 10, 1900.

SERIES OF 1900.

No. 20,536



SIR:

I have to acknowledge the receipt of the petition, specification, oath, and
drawing of your alleged improvement in

Apparatus for coating Chougraph
Records

with Fifteen Dollars as the first fee payable thereon.

The papers are duly filed, and your application for a patent will be taken
up for examination in its order.

You will be duly advised of the examination.

Very respectfully,

Case will be taken up for
examination in about one month.

C. A. Duell
Commissioner of Patents.

J. A. Edison

per Edgar Edmondo & Edgar
My best

NOR.—In order to constitute an application for a patent, the inventor is by law required to furnish his petition, specification,
oath, and drawings (where the nature of the case admits of drawings) and to pay the required fee.
No application is considered as complete, nor can any official action be had thereon, until all its parts, as here specified, are
furnished in due form by the inventor or applicant.

Any communication respecting this application should give the serial number, date of filing, and title of invention.

If payment is made by check or draft, the credit granted is subject to the collection of the same.

2-346.

Room No. 147,
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,

A. H. H.

UNITED STATES PATENT OFFICE,

WASHINGTON, D. C.,

July 17, 1900.

Thomas A. Edison,

Care Dyer, Edmonds & Dyer,

31 Nassau St.,

New York, N. Y.



Please find below a communication from the EXAMINER in charge of your application.

No. 20,556, filed June 16, 1900,—"Apparatus for Coating Phonograph Records, &c."

C. H. Dyer

Commissioner of Patents



Claims 1, 2, 3, 4, 6, 7 are objected to as alternative in the words "a silent or brush electrical discharge"; presumably the means for establishing these two forms of discharge are not identical.

Claims 3, 4, 6, 7 are rejected for the reason that there is no combination between the device and the object to be coated which is contained therein; the support for such object should be included and the electrode should be located with reference to the structural features of the device.

Claim 5, line 5, to be should be inserted before "connected".

The expression "vacuous deposit", claim 5, is objected to as indistinct.

Claims 1, 6, 7 are rejected on:

German 82,247, July 1, 1895, Boas, (Cathodes, Metallizing);

German 85,435, Feb. 19, 1896, Boas, " "

Claims 2, 3, 4 are rejected on the above patents, taken with:

U. S. 484,582, Oct. 18, 1892, Edison, (Phonograms, Duplicating). There would obviously be no invention in view of the United States patent, in applying the process of Boas to the duplication of sound records.

Claim 5 is rejected on the patents cited, taken with:

U. S. 548,131, Oct. 15, 1895, Moore, (Lighting Systems),

who shows it to be old to rotate objects contained within a

vacuum chamber by means of an external magnet.

RULE 73. In every amendment the exact word or words to be stricken out or inserted in the application must be specified and the precise point indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the paper previously filed, and written on both sides of the paper.

Ex'r Div. 5.

In every application for a patent filed subsequent to December 31, 1897, responsive action must be made by the inventor within one year after the last office action or the case will become abandoned.

File cited in 81038.

THOMAS A. EDISON

APPARATUS FOR COATING PHONOGRAPH RECORDS:

ROOM NO. 149.

FILED JUNE 16, 1900

SERIAL NO. 20,556

HON. COMMISSIONER OF PATENTS,

S I R :

Please amend by erasing claims 1 and 2 and substituting the following:-

-----1. An improved apparatus for securing a coating of a metal on an object, consisting of an exhausted chamber in which the object to be coated is supported, a support for the object within said chamber, an electrode of the metal to be deposited adjacent to said support, a second electrode on the other side of said support, and means for establishing between said electrodes a silent or brush electrical discharge, substantially as set forth.-----

Change the numerals of claims 3 and 4 to 2 and 3.

Erase claim 5.

Change the numerals of claims 6 and 7 to 4 and 5.

Present claim 5, line 5, after "deposited", insert

-----a support for the object between said electrodes-----

The apparatus for generating a silent electrical discharge is the same as the apparatus for generating a brush electrical discharge -- merely a difference in adjustment effects the character of the discharge. Hence the claims are not alternative.

Regarding claims 2, 3 and 4, we submit that the object is not brought into the combination as an element, but only as a convenient way for characterizing or defining the loca-

tion of the electrodes. With the Boas patent No. 82,247, it is not clear that the object is placed between the two electrodes. Presumably such is not the case, since the object to be coated is a mirror. With the Boas patent No. 85,435, the drawing very clearly shows the cathode between the anode and the object.

It is thought the case as now presented should be allowed.

Very respectfully,

THOMAS A. EDISON,

By _____

His Attorneys.

New York, July 5, 1901.

2-246.

Room No. 49...

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,

A.M.H.

UNITED STATES PATENT OFFICE,

WASHINGTON, D. C.,

July 13, 1901.

Thomas A. Edison,

Care Dyer, Kimonds & Dyer,

Edison Laboratory,

Orange, N. J.



Please find below a communication from the EXAMINER in charge of your application.

No. 20,556, filed June 16, 1900, - "Apparatus for Coating Phonograph-Records, &c."

F. J. Allen,
Commissioner of Patents.

Amendment filed July 6, 1901, has been entered.

Claims 2, 3, 4, 5 are again rejected for the reason that there is no combination between the apparatus and the object to be operated upon; these claims should be written after the manner of claim 1, to directly include the support for the object and to define the position of the electrodes with relation thereto.

Claim 1 is rejected upon the patents to Boas, cited. Attention is called to the fact that the disposition of apparatus employed in the patent 82,247 is more fully described in the later patent, it being stated therein, page 1, column 1, that the object to be coated is placed between the electrodes.

Claims 2, 3, 4, 5 are again rejected on the references of record.

Ex'r Div. 3.

*Richard A. Dyer
Samuel C. Edmunds
Frank L. Dyer*

*Law Offices
of
Dyer, Edmunds & Dyer
Specially: Patents, & Patent Causes.
31 Nassau Street,
New York.*

*Cable Address
Tinsman, New York
Tel. No. 2910 Eve.*

Feb 14 1902

THOMAS A. EDISON

SUBJECT-MATTER: *Apparatus for projecting photographic pictures onto*

FILED *June 16/02*

SERIAL NO. *20566*

EXAMINER'S ROOM NO. *149*

HONORABLE COMMISSIONER OF PATENTS,

S I R : _____

In the above entitled application, please address further communications to us at our office, No. 31 Nassau Street, New York City.

Very respectfully,

Attorneys of Record.

THOMAS A. EDISON

APPARATUS FOR COATING PHONOGRAPH RECORDS

ROOM NO. 149.

FILED JUNE 16, 1900

SERIAL NO. 20,556

HON. COMMISSIONER OF PATENTS,

S I R :

In accordance with the Examiner's request, we amend by erasing claims 2, 3, 4 and 5, and substituting the following:-

-----2. Improved apparatus for securing a coating of a metal on an object, consisting of an exhausted chamber in which the object to be coated is supported, a support for the object within said chamber, two electrodes in said chamber made of the metal to be deposited, said electrodes being placed diametrically of the support, and means for establishing between said electrodes a silent or brush electrical discharge, substantially as set forth.

3. Improved apparatus for securing a coating of a metal on an object, consisting of an exhausted chamber in which the object to be coated is supported, a support for the object within said chamber, two electrodes in said chamber made of the metal to be deposited, said electrodes being placed diametrically of the support, means for establishing between said electrodes a silent or brush electrical discharge, and means for rotating said support, substantially as set forth.

4. Improved apparatus for securing a coating of a metal on an object, consisting of an exhausted chamber in which the object to be coated is supported, a support for the object within said chamber, two electrodes within said chamber on opposite sides of said support, an induction

coil the secondary of which is connected to said electrodes, and means for energizing said induction coil for producing a silent or brush discharge between said electrodes, substantially as set forth.

5. Improved apparatus for securing a coating of a metal on an object, consisting of an exhausted chamber in which the object to be coated is supported, a support for the object within said chamber, a pair of insulating standards within the chamber on opposite sides of said support, electrodes carried by said standards and made of the metal to be deposited, and means for establishing a silent or brush discharge between said electrodes, substantially as set forth.-----

Reconsideration of the case is respectfully requested.

In the first Boas patent, No. 82,247, the description is manifestly insufficient. It is true the second Boas patent, No. 65,435, in referring to the first patent as a part of the prior art states that the object is placed between the two electrodes, but the second patent refers to this arrangement as distinctly disadvantageous, and claims as an improvement the placing of the cathode between the anode and the object. Even if the references are considered in the aggregate, they do not show the employment of a silent or brush discharge, nor do they show the making of the two electrodes of the same metal, and finally they do not show the rotation of the object. In fact, the two Boas patents appear to be designed solely for the purpose of operating on mirrors, and do not show processes which could be satisfactorily used for coating phonograph records.

We hope that upon reconsideration the claims will be allowed.

Respectfully,
THOMAS A. EDISON,

By _____

New York, June 3, 1902.

His Attorneys

2-260.

Room No. 145.
All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

Pat. No. 7

All communications requesting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

WASHINGTON, D. C.

June 27, 1902

Thos. A. Edison,
Care Dyer, Edmonds & Dyer,
31, Nassau St.
New York,
N. Y.



Please find below a communication from the EXAMINER in charge of your application,
Apparatus for Coating Phonograph-Records &c.-; Filed June 16, 1900
No. 20,556.

R. I. Allen
Commissioner of Patents.

The specification and claims for this case are drawn in such broad terms as to include the working of metallic mirrors or similar articles by means of a brush or silent discharge, and the only difference set forth over the German patents of record when both are taken together as publications, is that the phonogram or other object to be coated is rotated with the discharge chamber. Moreover, Moore, of record, shows at that the device of rotating objects in a vacuum chamber by means of a rotating magnet is old and to use the same and to apply the silent discharge used by Boas in his later patent in to the apparatus used by Boas in his earlier patent, as disclosed in his later patent, would obviously be a mere double use. Each claim is rejected for this reason and on the references of record.

It seems clear to the Examiner that the only invention disclosed in this case resides in the process, and such process being tacitly allowed in the copending case Number 20,556, applicant's rights are believed to be therein fully protected.

Case No. 1039.

Dropped

Filed June 16, 1900.

APPARATUS FOR COATING PHONOGRAPH RECORDS
AND OTHER ARTICLES.

CLAIMS.

1. An improved apparatus for securing a coating of a metal on an object, consisting of an exhausted chamber in which the object to be coated is supported, and electrode of the metal to be deposited and a second electrode in said chamber, and means for establishing between said electrodes a silent or brush electrical discharge, substantially as set forth.
2. An improved apparatus for securing a coating of a metal on an object, consisting of an exhausted chamber in which the object to be coated is supported, an electrode of the metal to be deposited and a second electrode in said chamber, means for establishing between said electrodes a silent or brush electrical discharge, and means for rotating the object, substantially as set forth.
3. An improved apparatus for securing a coating of metal on an object, comprising an exhausted chamber containing the object to be coated, two electrodes in said chamber made of the metal to be deposited, said electrodes being placed diametrically of the object, and means for establishing between said electrodes a silent or brush electrical discharge, substantially as set forth.
4. An improved apparatus for securing a coating of a metal on an object, comprising an exhausted chamber containing the object to be coated, two electrodes in said chamber made of the metal to be deposited, said electrodes being placed diametrically of the object, means for establishing between said electrodes a silent or brush electrical discharge, and means for rotating the object, substantially as set forth.

5. An improved apparatus for securing a coating of a metal on an object, comprising an exhausted chamber, means within the chamber for securing a vacuous deposit on the object, means for supporting the object within the chamber, an armature connected to the object, a magnet on the outside of the chamber for attracting said armature, and means for rotating the magnet with respect to the chamber, substantially as set forth.

6. An improved apparatus for securing a coating of a metal on an object, comprising an exhausted chamber, two electrodes within said chamber on opposite sides of the object to be coated, an induction coil the secondary of which is connected to said electrodes, and means for energizing said induction coil for producing a silent or brush discharge between said electrodes, substantially as set forth.

7. An improved apparatus for securing a coating of a metal on an object, comprising an exhausted chamber containing the object to be coated, a pair of insulating supports within the chamber, electrodes carried by said supports and made of the metal to be deposited, and means for establishing a silent or brush discharge between said electrodes, substantially as set forth.

No. 2430Serial No. 33034C. 1047

Applicant.

Thomas A. Edison (41)Address. ✓Title Invento, in Electric MetersFiled October 15, 1900.Examiner's Room No. 87

Assignee

Ass'g't Exec.

Recorded

Liber

Page

Patent No. 703051

Issued

June 24, 1902

ACTIONS.

1. Accepted Nov 10/1900 16
2. Amended Sept 11, 1901 17
3. Approved Sept 24-1901 18
4. Amended May 1, 1902 19
5. Allowed May 7, 1902 20
6. J. D. F. and June 3/02 21
7. 22
8. 23
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10. 25
11. 26
12. 27
13. 28
14. 29
15. 30

DYER, EDMONDS & DYER,

31 Nassau Street,
NEW YORK CITY.

Richard A. Wyer
Samuel A. Edwards
Frank L. Wyer

It is possible to make
another claim of iron core
2 or more times the length
of the solenoid.



Thomas A. Edison, Esq.

Orange

Dear Sir:-

Law Offices

Dyer, Edmund

Specialty: Patents, Patent Causes.

31 Nassau Street,

New York, May 23, 1902.

In view of all the information
furnished the claims made
if there are no new claims
that you can think of which
would strengthen the case then you
can let it go at that.

Your favor of the 22nd instant has been received, returning the allowed claims in your application for electric meters filed October 15, 1900, and enclosing also a list of questions relating to the state of the art. We present your questions herewith, together with our answers to the same.

1st. Who was the first to use a scalebeam with the counter on the beam, in an electric meter?

Ans. Weston, patent No. 442,705, dated December 16, 1890 (copy enclosed). With the preferred construction, the register is stationary and is driven from a toothed wheel U through intermediate connections, but the patent states (p. 3, lines 92 et seq.) that--

"The decimal-registering dials . . . may be fastened to the lever C and partake of its movement."

We doubt if this bald suggestion of a modification is sufficiently definite, under the authorities, to convey an accurate explanation of the exact construction contemplated.

(T. A. E., 2)

Thomson, patent No. 463,558, dated November 17, 1891 (copy enclosed). This patent very clearly shows the construction of the question.

2nd. Who was the first to work such a beam by a solenoid with coil in series with the lamps?

Ans. Thomson, patent No. 463,558 above referred to.

3rd. Who was the first to use soft unmagnetized iron in such a solenoid?

Ans. We do not know of any patent showing the exact requirements of the question. Thomson shows everything except the special solenoid called for, Thomson's solenoid having a fine wire coil instead of a soft iron core.

Patent to Marks, No. 586,559, dated July 20, 1897 (copy enclosed) states that--

"In electrical meters and indicators it is the common practice to employ a coil which actuates a movable element made of soft iron and whose movement adjusts the indicator or recording device" (p. 1, lines 12 et seq.).

4th. Who was the first to wind a fine wire on such solenoid to produce an initial magnetism, such coil being across the line?

Ans. Your application of October 15th, 1900, and the construction is covered broadly in claim 16 and more specifically in other claims.

The Marks patent above referred to describes the employment of "an additional winding within the solenoid to pro-

(T. A. E., 3)

duce saturation or polarization of the core, or the extra winding may be placed directly upon the core, or both arrangements may be employed" (p. 1, lines 37 et seq.); but we understand that with your construction the auxiliary coil does not produce saturation of the core, and it was on account of this difference that your claims were allowed on this feature.

5th. Who was the first to wind the solenoid coils on a copper tube to retard the violence of the action of a short circuit on the beam?

Ans. Your application of October 15th, 1900, and the feature is covered generically in claim 6 and specifically in other claims.

6th. Who was the first to make double windings on the solenoid to permit of the use as a 3-wire meter?

Ans. Your application in question, the construction being covered by the eighth claim.

7th. Who was the first to employ the construction of the sixth question with an extra coil to give an initial magnetism to the core, such coil being across the line?

Ans. Your application of October 15th, 1900, in question, the two features being covered by claims 8 and 16, as above stated.

(T. A. E., 4)

8th. Who was the first to employ the construction of the seventh question with a soft iron core?

Ans. Your application of October 15th, 1900.

9th. Who was the first to use a hollow core or tube of soft iron in a meter solenoid?

Ans. Maxim, in patents Nos. 255,306 and 255,307 of March 21, 1882 (copies enclosed), shows a hollow core for a meter solenoid, but the patents do not specifically state that the core is made of soft iron. *He has a core within a G, in both his patents - Marks by*

10th. Who was the first to overbalance the meter beam with a recorder on the beam?

Ans. Weston and Thomson before referred to. *marks by Weston don't say "Wedge" as in question*

11th. Who was the first to use a friction-driven wheel connected to a counter by power-transmitting mechanism, so that a rotation of the wheel advances the recorder?

Ans. Reckenzaun, patent No. 437,763, of October 7, 1890, shows this construction; also Edison patent No. 660,-293 of October 23rd, 1900 (copy enclosed).

12th. Who was the first to use the construction of the eleventh question, and to also have the wheel so arranged that it is free to lift when it comes in contact with an extraneous body in motion and produce traction for driving the wheel?

Ans. Edison, patent No. 660,293, above referred to.

(T. A. E., 5)

13th. Who was the first to use a revolving integrating wheel?

Ans. The patents to Maxim, to Reckenzaun, to Weston, to Thomson and to Edison (No. 660,293), all show this feature.

14th. Who was the first to drive an integrating wheel by a worm?

Ans. Maxim patents above considered.

15th. Who was the first to form such a wheel so that its surface shall at all points be of approximately the same radius or sweep of the traction wheel on the beam?

Ans. Thomson before considered.

16th. Who was the first to drive any kind of an integrating device by a motor across the line? *I mean a rotating motor with a friction governor*

Ans. Maxim patent No. 255,307. British patent to Varley and Greenwood, No. 2248 of 1882 (copy enclosed). See also Edison patent No. 660,293.

If no other device is provided OK in 1882-93
17th. Who was the first to drive any kind of an integrating device by a motor across the line with any device operated by a solenoid in series with the lights? *Electric governor continuously rotating motor*

Ans. Maxim, No. 255,307; Varley and Greenwood British patent No. 2248 of 1882; Edison, No. 660,293.

18th. Who first used a motor with a governor worked by friction run continuously and placed across the line?

(T. A. E., 6)

Ans. Edison, No. 660,293, and covered broadly in claims 1 and 2.

19th. Who was the first to use the construction of the eighteenth question with the addition of a beam with the counter thereon and a solenoid in series and containing a soft iron core?

Ans. We know of nothing complying exactly with the requirements of this question, except the application of October 15th, 1900, under consideration.

Edison patent No. 660,293 shows a frictionally governed motor across the line, and patents to Thomson, to Weston and to Marks show the other features of the question.

20th. Who was the first to make a motor having a governor with pendulous governor arms engaging glass to provide the friction of retardation?

Ans. Application of October 15th, 1900, and covered in claim 12.

We beg to return the copy of allowed claims herewith, together with all the patents above referred to except that to Reckenzaun, with which we believe you are familiar, and shall be glad to have your views as to whether the claims are sufficient in your opinion. You will note that your patent No. 660,293 covers the broad claims on meters of this

(T. A. E., 7)

type, and the present application was filed only for the purpose of claiming details.

Yours very truly,

Alfred E. Edwards, Jr.

FLD/IM.

Enclosures.

THOMAS A. EDISON

ELECTRIC METERS

FILED OCTOBER 15, 1900

SERIAL NO. 33,034

CLAIMS ALLOWED.

1. In an electric meter, the combination with an overbalanced beam, a core connected to one end of said beam, a stationary coil surrounding said core and traversed by the current to be measured, a register connected to and movable with the beam, and a friction wheel movable with the beam and connected with said register, of a cam with which said friction wheel periodically cooperates, and an electric motor connected across the line for rotating said cam at a constant speed, substantially as set forth.

*Suppose some
other device than
a cam were used*

2. In an electric meter, the combination with an overbalanced beam, a core connected to one end of said beam, a stationary coil surrounding said core and traversed by the current to be measured, a register connected to and movable with the beam, and a friction wheel movable with the beam and connected with said register, of a cam with which said friction wheel periodically cooperates, an electric motor connected across the line for rotating said cam at a constant speed, and an auxiliary coil of high resistance surrounding the core for overcoming magnetic inertia without producing saturation or polarization thereof, substantially as set forth.

3. In an electric meter, the combination with an overbalanced beam, a core connected to one end of said beam, a stationary coil surrounding said core and traversed by the

current to be measured, a register connected to and movable with the beam, and a friction wheel movable with the beam and connected with said register, of a cam with which said friction wheel periodically cooperates, an electric motor connected across the line for rotating said cam at a constant speed, and an auxiliary coil of high resistance surrounding the core for overcoming magnetic inertia without producing saturation or polarization thereof, said core being in series with the motor, substantially as set forth.

4. In an electric meter, the combination with a beam, a current indicator for moving said beam, a magnetic cutout in series with the current indicator for short-circuiting the latter when a destructive current traverses the cutout, and a register connected to and movable with the beam, of a variable speed gearing, one element of which is movable with the register, and a motor for operating the other element of said gearing, substantially as and for the purposes set forth.

5. In an electric meter, the combination with a current indicator having a movable element, a beam to which said element is connected, elastic buffers for limiting the extreme movements of said element, and a register, of a variable speed gearing the position of whose elements is determined by the position of said beam, and a motor for driving the register through said variable speed gearing, substantially as set forth.

6. In an electric meter, the combination with a beam, a core connected to one end of said beam, a copper tube surrounding said core and in which the core is freely movable, an ampere coil wound on the tube and traversed by the current to be measured, and a register, of a variable speed gearing the position of whose elements is determined

by the position of said beam, and a motor for driving the register through said variable speed gearing, substantially as set forth.

7. In an electric meter, the combination with a beam, a core connected to one end of said beam, a copper tube surrounding said core and in which the core is freely movable, an ampere coil wound on the tube and traversed by the current to be measured, elastic buffers for limiting the extreme movements of said core, and a register, of a variable speed gearing the position of whose elements is determined by the position of said beam, and a motor for driving the register through said variable speed gearing, substantially as set forth.

8. In a three-wire meter, the combination with a beam, a core connected to one end of said beam, a copper tube surrounding said core and within which the core is freely movable, four ampere coils wound helically and concentrically upon said tube, the outer and inner coils being connected in series with one of the outside mains and the two inner coils being connected in series with the other outside main, and a register, of a variable speed gearing the position of whose elements is determined by the position of said beam, and a motor for driving said register through said variable speed gearing, substantially as set forth.

9. In an electric meter, the combination with a beam, a core connected to one end of said beam, an ampere coil surrounding the core and traversed by the current to be measured, and a register, of a variable speed gearing the position of whose elements is determined by the position of said beam, a motor for driving said register through said variable speed gearing, and an auxiliary coil enclosing the core for overcoming the magnetic inertia thereof without producing saturation or polarization, substantially as set

forth.

10. In an electric meter, the combination with a beam, a core connected to one end of said beam, an ampere coil surrounding the core and traversed by the current to be measured, and a register, of a variable speed gearing the position of whose elements is determined by the position of said beam, a motor for driving said register through said variable speed gearing, and a stationary auxiliary coil enclosing the core and in series with said motor, substantially as set forth.

11. In an electric meter, the combination with a beam, an ampere indicator the movable element of which is connected with said beam, said indicator including a coil traversed by the current to be measured, a register, and a motor for operating said register, of a magnetic cutout arranged to close a shunt around the ampere coil when said cutout is influenced by an abnormal current, substantially as set forth.

12. In an electric meter, the combination with a register, an ampere indicator, and a variable speed gearing the position of whose elements is determined by said indicator, of a constant speed motor for driving the register through the variable speed gearing, and a centrifugal speed regulator for said motor employing a weighted bell-crank carrying a friction pad which cooperates with a glass friction surface, substantially as set forth.

13. In an electric meter, the combination with a register and a driving motor, of an ampere indicator comprising a beam, a core connected to one end of said beam, a coil for influencing the core traversed by the current to be measured, and a copper tube on which the coil is wound and in which the core is freely movable, substantially as set forth.

14. In an electric meter, the combination with a register and a driving motor, of an ampere indicator comprising a beam, a core connected to one end of said beam, a coil for influencing the core traversed by the current to be measured, a copper tube on which the coil is wound and in which the core is freely movable, and elastic buffers for limiting the extreme movements of said core, substantially as set forth.

15. In an electric meter, the combination with a register and a driving motor, of an ampere indicator comprising a beam, a core connected to one end of said beam, a coil for influencing the core traversed by the current to be measured, a magnetic cutout in circuit with said coil for shunting the same when a destructive current is traversing the coil, and a copper tube on which the coil is wound and in which the core is freely movable, substantially as set forth.

16. In an electric meter, the combination with a register and a motor for operating the same, of an ampere indicator comprising a coil, a core, and an auxiliary coil for subjecting the core to an initial magnetizing effect without producing polarization or saturation thereof, substantially as set forth.

No. 2452E. No. 1050Serial No. 41373

Applicant.

Thomas A. Edison

Address.

Llewellyn ParkOrangeNew Jersey

Title

Reversible Galvanic Batteries

Filed

December 28, 1900

Examiner's Room No.

149

Assignee

Ass'g't Exec.

Recorded

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Page

Patent No.

Issued

ACTIONS.

- 1 Reported Jan 17, 1901 16 1056
- 2 Abandonment Mch. 1, 1901 17 1056
- 3 _____ 18 _____
- 4 _____ 19 _____
- 5 _____ 20 _____
- 6 _____ 21 _____
- 7 _____ 22 _____
- 8 _____ 23 _____
- 9 _____ 24 _____
- 10 _____ 25 _____
- 11 _____ 26 _____
- 12 _____ 27 _____
- 13 _____ 28 _____
- 14 _____ 29 _____
- 15 _____ 30 _____
- Abandoned
in favor of
E. 1055*
- 1055
1056*

DYER, EDMONDS & DYER,

31 Nassau Street,

NEW YORK CITY.

LAW OFFICES
OF
DYER, EDMONDS & DYER.
SPECIALTY:
Patents and Patent Causes,
31 NASSAU ST., NEW YORK.

RICHARD N. DYER,
REGISTRATION NO. 429.
SAMUEL O. EDMONDS,
REGISTRATION NO. 811.
FRANK L. DYER,
REGISTRATION NO. 222.

Petition.

To the Commissioner of Patents:

YOUR PETITIONER **THOMAS A. EDISON**, a citizen of the United States, residing and having his Post Office address at Llewellyn Park, in the County of Essex and State of New Jersey,

PRAYS THAT LETTERS PATENT MAY BE GRANTED TO HIM FOR THE **IMPROVEMENT IN REVERSIBLE GALVANIC BATTERIES**

SET FORTH IN THE ANNEXED SPECIFICATION; AND HE HEREBY APPOINTS DYER, EDMONDS AND DYER (A FIRM COMPOSED OF RICHARD N. DYER, SAMUEL O. EDMONDS AND FRANK L. DYER), OF NO. 31 NASSAU STREET, NEW YORK CITY, HIS ATTORNEYS, WITH FULL POWER OF SUBSTITUTION AND REVOCATION, TO PROSECUTE THIS APPLICATION, TO MAKE ALTERATIONS AND AMENDMENTS THEREIN, TO RECEIVE THE PATENT, AND TO TRANSACT ALL BUSINESS IN THE PATENT OFFICE CONNECTED THEREWITH.

Thomas A. Edison

SPECIFICATION.

TO WHOM IT MAY CONCERN:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park in the County of Essex and State of New Jersey, have invented a certain new and useful IMPROVEMENT IN REVERSIBLE GALVANIC BATTERIES (case No. 1080), of which the following is a description:

My invention relates to improvements in reversible or so-called storage batteries, and my object is to produce a reversible galvanic cell of great permanency and of remarkably light weight per unit of energy.

In my application for Letters Patent filed October 31st 1900 Serial No. 34,994, I describe an improved reversible galvanic cell wherein the metals cadmium and copper are employed as the elements in an alkaline electrolyte, and by means of which I secured a very permanent cell, one wherein the initial and final states of the electrolyte are the same, and finally one which ~~up to that time~~ was capable of storing a greater amount of energy per pound of cell than batteries ~~heretofore suggested~~ ^{commercially used before that time}.

My present invention is designed to further lighten the weight of the cell in comparison to the stored energy, and to deliver the energy to the exterior circuit at a higher rate.

In the alkaline zincate type of battery, ^{as commercially used} so far as I know, copper oxide has heretofore been used exclusively as the oxygen-furnishing element when the battery is discharged, the copper being reduced to the metallic state. The only other elements which have been suggested ^{and would be} as available as substitutes for copper in these batteries, have been those lower in the electrolytic series, such as mercury and sil-

ver, but so far as I know, these metals have not been satisfactorily or commercially utilized on account of the difficulties arising from their application in alkaline electrolytes as well as because of their expense, especially in regard to silver, which metal possesses the further disadvantage of being partially soluble in the electrolyte, ^{quite} ~~when subjected to oxidation.~~ I have sought, by a great many experiments, for an element or compound capable of being used in an alkaline electrolyte, whose heat of formation of its oxide should be as low or lower than that of mercury, and in this I have been successful, the result being the discovery of an element for furnishing the oxygen to the oxidizable element on discharge with even greater freedom than oxide of mercury, while at the same time the new element is less expensive, is of less weight, is of greater permanency, and finally is of greater insolubility in the electrolyte. I have also sought, by experiment, for an element superior to cadmium as the oxidizable element on discharge, with the objects in view of further reducing the weight and cost of the cell, and I have discovered an element for the purpose possessing these desirable characteristics. As a result, a reversible galvanic cell equipped with the new elements is of great permanence, is relatively light and inexpensive, and is of great power. These elements are, as stated, preferably used in the same cell, but obviously the oxygen-furnishing element may be employed in connection with other oxidizable elements, while the new oxidizable element may be employed in connection with other oxygen-furnishing elements:

The elements are also preferably carried or supported by hollow perforated plates, forming receptacles or pockets, which are illustrated in the accompanying draw-

ings forming part of this specification and in which figure 1 is a face view of one of the plates having three pockets or receptacles, showing the front wall partly broken away; figure 2 is a section on the line 2--2 of figure 1; figure 3 is a plan, showing two of the plates forming a single combination; and figure 4 an enlarged detailed section.

In all of the above views, corresponding parts are represented by the same numerals of reference.

Each plate is formed with two walls 1 and 2 constructed preferably of a single continuous sheet made preferably of very thin sheet nickel, say about .005 of an inch in thickness, and bent at its bottom around a horizontal frame 3 from which extends the vertical spacing frames 4, 4, to all of which frames the sheet is secured by means of nickel rivets, as shown, to form a strong, rigid, hollow plate with pockets or receptacles between the vertical frames 4, 4. The walls 1 and 2 of the plate, as shown, are perforated with small holes arranged very closely together and each about .015 of an inch in diameter. I prefer to use nickel in the construction of the plates, since that metal is not oxidizable by electric oxidation in an alkaline solution. Iron, on the other hand, is slightly oxidized under these conditions and is not so desirable, but if very carefully and perfectly plated with nickel, it may be used satisfactorily for the construction of either the plates or the frames. Obviously the frames 3 and 4 may be, and in some instances preferably are, constructed of hard rubber or other inert material, to which the perforated sheet is riveted, as explained. Secured to one or both of the sides of the plate are a number of insulated spacing blocks 5, 5, to prevent adjacent plates from touching when immersed in the electrolyte.

40000

In the manufacture of my new oxidizable element for use in a reversible galvanic cell, I first preferably take monosulphide of iron and reduce it by a crushing operation until the particles thereof may be passed through a screen having about 4,000 openings per square inch, and I intimately mix about eight parts by weight of the powdered monosulphide with about two parts by weight of flake graphite of a size considerably larger than the perforations in the walls of the pockets or receptacles. ^A This mixture is then moistened with a twenty-percent solution of potassic hydroxide, and the dampened mass is packed into the pockets or receptacles of the proper plates by a suitable tamping tool. ^B After each pocket or receptacle has been tightly packed with the mass almost to its top, a wad of asbestos fiber 6 about a quarter of an inch in thickness is introduced into the pocket or receptacle above the mass, and on top of this packing is placed a strip of sheet nickel 7 entirely covering the asbestos and filling the mouth of the pocket, which strip is permanently secured in position by nickel wires 8 threaded through the openings near the top of the pocket, as shown particularly in figure 2. The element thus formed is subjected to electrolytic oxidization in a solution of potassic hydroxide, whereby sulphur will be set free and combining with the alkali forms a sulphide of potassium which diffuses out of the mass, while the iron is converted to ^{ferrous} oxide thereof. This diffusion of the alkaline sulphide out of the plate is hastened and facilitated by subjecting the contents of the plate to alternate oxidization and reduction by alternately reversing the oxidizing current, and by several of these operations the whole of the sulphur will be eliminated and the element will be ready for use after the iron has been reduced to the metallic

determined only after my knowledge of the experiment

state. Since iron does not decompose water, there will obviously be no local action between it and the graphite. The oxide formed from the sulphide increases in bulk, and being intermediately mixed with the graphite, produces considerable pressure on the walls of the plate, which prevents any disturbance of the initial state of the mass even when it is subjected to strong gassing within the pores by overcharging the element electrically. The object of using the monosulphide is to secure the greatest amount of iron oxide in the smallest space and in a form capable of being reduced to the metallic state electrolytically.

My attempts to utilize iron as the oxidizable element in an alkaline reversible battery were for a long time ~~frustrated by the facts that dried oxides of iron were not reducible to any extent by the current; that spongy iron reduced by hydrogen from different iron salts was not oxidizable to any considerable extent by the current; that the hydrates of iron were very bulky and difficult of use without drying, which operation effected some obscure change therein to render them nearly inert in the presence of the reducing current; that bulky ferric oxide was not capable of any considerable reduction by the current; and finally that ferrous oxide was very difficult to prepare on account of atmospheric oxidation.~~ ^{though, I am not positive} The formation of the ~~ferrous~~ oxide in the first instance within the pockets or receptacles did away with the objections due to the bulk of the hydrates, while the oxide thus formed is perfectly reducible by the current. Instead of forming the oxide in this way by oxidizing the monosulphide in an alkaline solution, it will be obvious that salts of iron, like ferrous chloride, may be packed with the graphite and when placed in an alkaline solution form chloride of the alkali and ^{ferrous} oxide of iron.

the alkaline chloride diffusing out of the mass. The results, however, are not so good as when the sulphide of iron is used, since the quantity of finely divided iron produced thereby is considerably less and is also less porous, offering therefore a reduced opportunity for the solution to penetrate the mass, and lowering in consequence its current-conducting capacity. Metallic iron, even when finely divided as produced by electrolytic reduction, does not of itself oxidize in solutions of the fixed alkalis, and the oxide of iron is not appreciably soluble. Compact, ^{dense, or non-porous} iron, i.e. iron having relatively large particles, when subjected to ^{strong or powerful} forced electrolytic oxidation, forms a soluble ferrate of the alkali and dissolves in the electrolyte. On the other hand, finely divided iron obtained as described, when subjected to electrolytic oxidation, does not form a soluble ferrate but is converted into the insoluble ferrous oxide. My improved oxidizable element is therefore absolutely permanent, so that in the operation of the battery, the electrolyte is not changed at any stage of the working, ^{and absolutely no deterioration of the Bogen element takes place}. Having described the advantages and characteristics of, and the preferred manner of making, the oxidizable element, reference will now be made to the preferred oxygen-furnishing or storing element of the cell.

I have discovered by experiment that the lower oxides of nickel and cobalt, when in contact with a conductor in an alkaline solution, can be almost wholly raised from the lower to a higher stage of oxidation electrolytically and that these higher oxides revert to ^a the lower stage by reduction with extreme ease, and availing myself of this fact, I have constructed an oxygen-storing element capable of greater capacity, of less weight, and of higher permanence than any electrode for the purpose which, so far

as I know, has heretofore been applied. Neither the oxide of nickel nor of cobalt is appreciably soluble in an alkaline electrolyte, and both nickel and cobalt give nearly the same voltage in use, but since nickel is less expensive than cobalt, I prefer to use the former element for the purpose.

C The preferred process of making the oxygen-storing element consists in first precipitating the hydrated oxide of the metal, say nickel, spreading the fresh precipitate on plates, and slowly drying the same at ordinary temperatures. The dried hydrate is then powdered, and screened through a sieve having, say, 4,000 holes per square inch. About seven parts by weight of the finely powdered hydrate and three parts by weight of flake graphite are then intimately mixed, and moistened with a small quantity of a strong solution of potassic hydroxide so as to dampen the mass, which is then inserted in the pockets or receptacles of the proper plates in small quantities at a time and thoroughly tamped at each accession. Finally the mass is covered with a layer of asbestos, held in place by a plate of nickel secured in position by nickel wires, as I have described in explaining the makeup of the oxidizable element. The plates, the pockets of which are thus supplied with the mixture of the hydrated oxide and graphite, are then immersed in a solution of potassic hydroxide in water and subjected for a considerable time to an oxidizing current of about fifty milamperes per square inch of surface, thereby resulting in the conversion of the mixed oxide to a highly oxidized state upon the element is ready for use.

The object of employing graphite, which is not affected by electrolytic oxidation, is to offer a great extent of surface against which the whole of the oxide is in

contact, a large conducting surface being necessary since the electrolytic reduction and oxidation for practical purposes only extend a small distance from the conducting surface against which the oxide is in contact. This is admirably effected by the use of graphite in its micaceous form, the proportions indicated being such as to practically insure that the electrolytic action need not penetrate a greater distance from the contact surface than the thickness of a single particle of the oxide. Furthermore, there is no local action between the nickel or cobalt oxides and the graphite.

The reason why nickel hydrate is preferably used instead of other compounds of nickel, is that the metal itself when finely divided (as obtained by reducing a nickel compound by hydrogen or electrolysis), is not oxidizable to any considerable extent when subjected to electrolytic oxidation in an alkaline solution, and it is probably due to this fact that the availability of nickel and cobalt as the oxygen-storing element in an alkaline electrolyte has not been recognized. The sulphide of nickel is not decomposed by electrolysis under the conditions of battery work, and the sulphide of cobalt only imperfectly; hence the hydrates are the most available compounds for use, since they do not become inert to the same extent as hydrates of the oxides of iron after drying, they are easily prepared, and by absorbing the solution they swell within the pockets or receptacles so as to insure intimate contact and stability.

Having thus constructed the two elements of the battery, they are preferably utilized together in a solution of twenty-five percent of potassic hydroxide in water, and the cell is ready for use, *the more being in metallic form, and the remainder cobalt oxide mixed with the nickel hydrate.* Owing to several obscure reactions which take place

when the battery is discharged, and also to a change of resistance within the electrodes, the voltage is variable, but the average voltage over the whole discharge is about 1 volt, rising as high as 1.32 volts and sometimes higher when freshly charged.

My improved battery can be over-charged, fully discharged, or even reversed and charged in the opposite direction without any injury. Over-gassing does not disturb the initial state of the materials in the pockets, all the ingredients are insoluble, the plates are unattacked by electrolytic oxidation, and the whole operation is independent of the strength of the solution, so that the battery is of great permanence, while at the same time more energy will be stored per unit of weight than with any practical combination heretofore suggested. *21*

Having now described my invention, what I claim as new and desire to secure by Letters Patent is as follows:

1. In a reversible galvanic battery, one element (or pole) employing iron as the active material and the other element (or pole) employing oxide of nickel or cobalt as the active material, substantially as set forth.

2. In a reversible galvanic battery employing an alkaline electrolyte, one element (or pole) employing iron as the active material and the other element (or pole) employing oxide of nickel or cobalt as the active material, substantially as set forth.

3. In a reversible galvanic battery, an active element therefor containing the oxides of nickel or cobalt, substantially as set forth.

4. In a reversible galvanic battery employing an alkaline electrolyte, an active element therefor containing the oxides of nickel or cobalt, substantially as set forth.

5. In a reversible galvanic battery, an active element therefor containing finely divided iron, substantially as set forth.

6. In a reversible galvanic battery employing an alkaline electrolyte, an active element therefor containing finely divided iron, ^{Electrolytically active} substantially as set forth.

7. In a reversible galvanic cell containing an alkaline electrolyte, an active element therefor containing an iron compound reducible (by reduction) to the metallic state (and formed in situ by electrolytically acting upon the iron compound not decomposable by the alkali of the electrolyte) substantially as set forth.

8. In a reversible galvanic cell, a perforated metallic pocket containing an active material under pressure, substantially as set forth.

9. In a reversible galvanic cell, a perforated nickel pocket containing an active material under pressure, substantially as set forth.

10. In a reversible galvanic cell, a perforated metallic pocket containing an active material, and a separate closing device for covering the opening to the pocket after the material is introduced therein, substantially as set forth.

11. In a reversible galvanic cell employing an alkaline electrolyte, an active material therefor mixed with graphite for making contact therewith, substantially as set forth.

12. In a reversible galvanic cell containing an alkaline electrolyte, an active element employing an oxide of nickel or cobalt and ^{nickel} graphite for making contact with the oxide, substantially as set forth.

13. In a reversible galvanic cell employing an

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alkaline electrolyte, an active element comprising finely divided iron (or its oxide) and graphite for making contact therewith, substantially as set forth.

14. In a reversible galvanic cell employing an alkaline electrolyte, a perforated metallic pocket, and an active material rigidly secured therein so as not to be disturbed when subjected to electrolysis, substantially as set forth.

15. In a reversible galvanic cell, the formation of ferrous oxide from iron compounds by electrolytic action within the liquid, substantially as set forth.

16. In a reversible galvanic cell, the formation of ferrous oxide from sulphide of iron by electrolytic action within the liquid, substantially as set forth.

17. In a reversible galvanic cell, the formation of ferrous oxide within the element by precipitating the oxide from a ferrous salt by the action of an alkali, substantially as set forth.

THIS SPECIFICATION SIGNED AND WITNESSED THIS 21st DAY OF December 1900

Thomas A. Edison

Witnesses:

1. Frank L. Dyer
2. Rich. H. Dyer

Oath.

State of New Jersey } ss.:
County of Essex

THOMAS A. EDISON

, THE ABOVE-NAMED

PETITIONER, BEING DULY SWORN, DEPOSES AND SAYS THAT HE IS A citizen
OF THE United States and a resident of Mewelllyn Park, in the
County of Essex and State of New Jersey;
THAT HE VERILY BELIEVES HIMSELF TO BE THE ORIGINAL, FIRST AND SOLE INVENTOR
OF THE IMPROVEMENT IN REVERSIBLE GALVANIC BATTERIES;

DESCRIBED AND CLAIMED IN THE ANNEXED SPECIFICATION; THAT HE DOES NOT
KNOW AND DOES NOT BELIEVE THAT THE SAME WAS EVER KNOWN OR USED BEFORE
HIS INVENTION OR DISCOVERY THEREOF; OR PATENTED OR DESCRIBED IN ANY
PRINTED PUBLICATION IN THE UNITED STATES OF AMERICA OR ANY FOREIGN COUNTRY
BEFORE HIS INVENTION OR DISCOVERY THEREOF, OR MORE THAN TWO YEARS PRIOR
TO THIS APPLICATION; OR IN PUBLIC USE OR ON SALE IN THE UNITED STATES FOR
MORE THAN TWO YEARS PRIOR TO THIS APPLICATION, AND THAT NO APPLICATION
FOR FOREIGN PATENT HAS BEEN FILED BY HIM OR HIS LEGAL REPRESENTATIVES OR
ASSIGNS IN ANY FOREIGN COUNTRY.

Thomas A. Edison

SWORN TO AND SUBSCRIBED BEFORE ME THIS 21st DAY OF December 1900

Rich. H. Dyer

NOTARY PUBLIC.

(SEAL)

2-161.

All communications should be addressed to
"The Commissioner of Patents,
Washington, D. C."

DEPARTMENT OF THE INTERIOR,

United States Patent Office,

Washington, D. C.,

1050
(SERIES OF 1900.

No. 41373



Dec 28, 1900.

SIR:

I have to acknowledge the receipt of the petition, specification, oath, and drawing of your alleged improvement in.....

Reversible Galvanic Batteries

with Fifteen Dollars as the first fee payable thereon.

The papers are duly filed, and your application for a patent will be taken up for examination in its order.....

You will be duly advised of the examination.

Very respectfully,

as taken up for examination in about / months.

C. H. Driell
Commissioner of Patents.

J. A. Edison

of J. Edgar, Edmonds & Dyar

31 Nassau St

N. Y. City

NOTE.—In order to constitute an application for a patent, the inventor is by law required to furnish the petition, specification, oath, and drawings (where the nature of the case admits of drawings) and to pay the required fee.
No application is considered as complete, nor can any official action be had thereon, until all the parts, as here specified, are furnished in due form by the inventor or applicant.

Any communication respecting this application should give the serial number, date of filing, and title of invention.

See If payment is made by check or draft, the credit granted is subject to the collection of the receiver.

2-246.

Room No. 147
All communications should be addressed to
The Commissioner of Patents,
Washington, D. C.

All communications respecting this
application should give the serial number,
date of filing, and title of invention.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

WASHINGTON, D. C.



Jan. 17, 1901

Thomas A. Edison,
Care Dyer, Edmonds & Dyer,
31 Nassau St.,
New York, N. Y.



Please find below a communication from the EXAMINER in charge of your application.

No. 41,373, filed Dec. 28, 1900, -"Reversible Galvanic Batteries".

C. H. Duell
Commissioner of Patents.

It is requested that some evidence be furnished to substantiate the statement made in lines 14, 15, 16 and 17, page 5, first that dried oxides of iron are not reducible to any extent by the current, and, second, that spongy iron reduced by hydrogen is not oxidizable to any considerable extent by the current. The last statement is apparently contradictory to that made in lines 11, 12 of page 6, in which it is stated that compact iron when subjected to forced electrolytic oxidation forms a soluble ferrate, etc. *note*

The words "dried hydrate" in line 11, page 7, are objected to for the reason that when the hydrate of nickel is dried it is no longer a hydrate; it is then an oxide; see Watt's "Dictionary of Chemistry", London, 1866, Vol. 4, p.41, li. 9. *note*

The statement contained at the top of page 8 that when a mass of oxide is employed the electrolytic reduction and oxidation will extend only a small distance from the conducting surface, is not thought to be strictly correct, for the reason that in the ordinary De Lelande type of cell the reduction of copper oxide will extend to the center of the depolarizer. *note*

It is requested that some evidence be furnished to substantiate the statement made in lines 14-16, page 8, that finely divided reduced nickel is not oxidizable to any considerable extent when subjected to oxidation in an alkaline solution. *note*

The word "plates" as used in line 10, page 9 is indefinite in that it is not clear whether it refers to the holder or the complete electrode. *note*

RULE 73. In every amendment the exact word or words to be stricken out or inserted in the application must be specified and the precise point indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper.

In every application for a patent filed subsequent to December 31, 1897, responsive action must be made by the inventor within one year after the last office action or the case will become abandoned.

It is requested that a working cell be furnished in order that the effect of the caustic solution on finely divided iron may be determined and also to determine whether more energy will be stored per unit of weight in applicant's cell than in any other combination heretofore suggested, as stated in lines 14, 15, 16, page 9. at
Ent

The words "or pole" should be canceled from claims 1, 2. Claims 1, 2, 3, 4, 12 are objected to as being alternative in the words "nickel or cobalt".

Claims 2, 4, 6, 7, 11, 12, 13, 14, are objected to as being indirect in that the alkaline electrolyte referred to has not been made a positive element of the claims.

It is suggested that the words "by reduction" be canceled from line 5 of claim 7. The last three lines of claim 7 are objected to for the reason that they refer to the manner of manufacture; the article should be defined by a statement of its structure.

Claim 13 is objected to as being alternative in the words "finely divided iron or its oxide", since these are not equivalents.

Claims 15, 16 are objected to as being indirect in that the liquid referred to in line 3 has not been positively included.

The claims in this case are considered to cover four different inventions: (1) the battery covered by claims 1, 2, 3, 4, 5, 6, 7, 11, 12, 13; (2) the metallic pocket for containing active material, which may be employed in various cells, covered by claims 8, 9, 10, 14; (3) the process of making ferrous oxide covered by claims 15 and 16, and, (4) the process of making ferrous oxide, covered by claim 17. In advance of further action upon the merits the claims should be limited to a single invention.

Claims 1, 2, 3, 4, are each rejected upon:

U. S. 274,110, Mar. 20, 1883, De Lelande, et al., (Batt., 1-fl., Zn., Oxides),

see line 30, page 1, taken in connection with:

British 15,370, July 26, 1899, Micholowski, (Batt., Sec.).

Claims 5, 6, 7 are each rejected upon DeLelande, above cited.

Claims 8, 9, 10, 14, are each rejected upon:

British 7892, Apr. 14, 1899, Jungner, (Batt., Sec.),

taken in connection with:

U. S. 533,078, Jan. 29, 1890, O'Toole, (Batt., 1-fl., Zn., Oxides).

Claim 11 is rejected upon DeLelande, above cited; see line 59, page 1. Carbon is considered to be the equivalent of graphite in this connection. It is further rejected upon:

U. S. 544,957, July 6, 1896, Parbaky, (Batt., Sec.);

U. S. 585,699, July 6, 1897, Pullen, (Batt., 1-fl., Zn., Oxides).

Claim 12 is rejected upon the references cited against claim 11, taken in connection with Micholowski, above cited, and:

German 38,383, Dun, (Batt., 1-fl., Zn., Oxides).

Action upon the merits of claims 15, 16 and 17 is suspended.

THOMAS A. EDISON
REVERSIBLE GALVANIC BATTERIES
FILED DECEMBER 28, 1900
SERIAL NO. ^{41,373}~~41,372~~

HONORABLE COMMISSIONER OF PATENTS:

I hereby abandon the above entitled application
(without relinquishing any rights in and to the invention
described therein) in favor of two applications embodying
the same invention and executed on even date herewith, said
applications being numbered in my series of cases 1055 and
1056 respectively.

Very respectfully,

Signed at Orange, New Jersey,
February 23rd 1901,
In presence of

Frank L. Lyon
Jno R Taylor

Thomas A. Edison

Case No. 1050

Abandoned

Filed December 28, 1900.

REVERSIBLE GALVANIC BATTERIES.

Claims.

1. In a reversible galvanic battery, one element or pole employing iron as the active material and the other element or pole employing oxide of nickel or cobalt as the active material, substantially as set forth.
2. In a reversible galvanic battery employing an alkaline electrolyte, one element or pole employing iron as the active material and the other element or pole employing oxide of nickel or cobalt as the active material, substantially as set forth.
3. In a reversible galvanic battery, and active element therefor containing the oxides of nickel or cobalt, substantially as set forth.
4. In a reversible galvanic battery employing an alkaline electrolyte, an active element therefor containing the oxides of nickel or cobalt, substantially as set forth.
5. In a reversible galvanic battery, an active element therefor containing finely divided iron, substantially as set forth.
6. In a reversible galvanic battery employing an alkaline electrolyte, an active element therefor containing finely divided iron, substantially as set forth.
7. In a reversible galvanic cell containing an alkaline electrolyte, an active element therefor containing an iron compound reducible by reduction of the metallic state and formed in situ by electrolytically acting upon the iron compound not decomposable by the alkali of the

electrolyte, substantially as set forth.

8. In a reversible galvanic cell, a perforated metallic pocket containing an active material under pressure, substantially as set forth.

9. In a reversible galvanic cell, a perforated nickel pocket containing an active material under pressure, substantially as set forth.

10. In a reversible galvanic cell, a perforated metallic pocket containing an active material, and a separate closing device for covering the opening to the pocket after the material is introduced therein, substantially as set forth.

11. In a reversible galvanic cell employing an alkaline electrolyte, an active material therefor mixed with graphite for making contact therewith, substantially as set forth.

12. In a reversible galvanic cell containing an alkaline electrolyte, an active element employing an oxide of nickel or cobalt and graphite for making contact with the oxide, substantially as set forth.

13. In a reversible galvanic cell employing an alkaline electrolyte, an active element comprising finely divided iron or its oxide and graphite for making contact therewith, substantially as set forth.

14. In a reversible galvanic cell employing an alkaline electrolyte, a perforated metallic pocket, and an active material rigidly secured therein so as not to be disturbed when subjected to electrolysis, substantially as set forth.

15. In a reversible galvanic cell, the formation of ferrous oxide from iron compounds by electrolytic action within the liquid, substantially as set forth.

16. In a reversible galvanic cell, the formation of ferrous oxide from sulphide of iron by electrolytic action within the liquid, substantially as set forth.

17. In a reversible galvanic cell, the formation of ferrous oxide within the element by precipitating the oxide from a ferrous salt by the action of an alkali, substantially as set forth.

No. 2469

Serial No. _____

E. 1052

Applicant.

Address. ✓

Thomas A. Edison

Title

Infr. in Storage Battery

Filed _____

Examiner's Room No. _____

Assignee _____

Ass'g't Exec. _____

Recorded _____

Liber _____

Page _____

Patent No. _____

Issued _____

ACTIONS.

1	_____	16	_____
2	_____	17	_____
3	_____	18	_____
4	_____	19	_____
5	_____	20	_____
6	_____	21	_____
7	_____	22	_____
8	_____	23	_____
9	_____	24	_____
10	_____	25	_____
11	_____	26	_____
12	_____	27	_____
13	_____	28	_____
14	_____	29	_____
15	_____	30	_____

DYER, EDMONDS & DYER,

31 Nassau Street,

NEW YORK CITY.

LAW OFFICES
OF
DYER, EDMONDS & DYER.
SPECIALTY:
Patents and Patent Causes,
31 NASSAU ST., NEW YORK.

RICHARD N. DYER,
REGISTRATION NO. 429.
SAMUEL O. EDMONDS,
REGISTRATION NO. 431.
FRANK L. DYER,
REGISTRATION NO. 428.

Petition.

To the Commissioner of Patents:

YOUR PETITIONER THOMAS A. EDISON, a citizen of the United States, residing and having his postoffice address at Menlo Park, in the County of Essex and State of New Jersey,

PRAYS THAT LETTERS PATENT MAY BE GRANTED TO HIM FOR THE IMPROVEMENT IN
STORAGE BATTERIES

SET FORTH IN THE ANNEXED SPECIFICATION; AND HE HEREBY APPOINTS DYER, EDMONDS AND DYER (A FIRM COMPOSED OF RICHARD N. DYER, SAMUEL O. EDMONDS AND FRANK L. DYER), OF NO. 31 NASSAU STREET, NEW YORK CITY, HIS ATTORNEYS, WITH FULL POWER OF SUBSTITUTION AND REVOCATION, TO PROSECUTE THIS APPLICATION, TO MAKE ALTERATIONS AND AMENDMENTS THEREIN, TO RECEIVE THE PATENT, AND TO TRANSACT ALL BUSINESS IN THE PATENT OFFICE CONNECTED THEREWITH.

SPECIFICATION.

TO ALL WHOM IT MAY CONCERN:

Be it known that J. THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the County of Essex and State of New Jersey, have invented a certain (Case No. 1052) new and useful IMPROVEMENT IN STORAGE BATTERIES, of which the following is a specification:-

In my application for patent filed December 28, 1900, Serial No. 41,373, I describe an improved storage battery wherein the active materials are carried in perforated pockets or receptacles, one of the active materials being nickel or cobalt oxide, and the other active material being finely divided iron, each of the active materials being mixed with flake graphite to form an electrically conducting mass. In describing the manufacture of my improved battery plates, I stated that the active materials, whether in their ultimate form or not, were introduced into the perforated pockets or receptacles in small portions at a time and suitably tamped at each accession. It is desirable that as much of the active material as possible should be introduced into each pocket, in order that the capacity of the battery may be increased and conductivity between the particles improved.

The object of my present invention is to facilitate this result, and to this end the invention consists of loading the pockets or receptacles forming the positive and negative elements of the battery with compressed plates of the active material formed by subjecting the proper quantity of such active material to great pressure, say about seven thousand pounds per square inch, and by then inserting such compressed plates into the perforated pockets or receptacles.

In this way the amount of material which can be inserted in the pockets or receptacles is greatly increased, and since the internal contact between the particles is improved, a greater amount of active material becomes effective.

In constructing the plates for the oxygen-storing element, either nickel or cobalt hydrate is preferably used, which having been dried and finely powdered is mixed in the proportions of about seven parts of hydrate to three parts of flake graphite. This mixture is then subjected to great pressure and is molded into plates having the width and thickness to closely fit within the pockets or receptacles. When the pockets or receptacles are relatively long, as is preferable, a number of these plates are inserted one above the other, to completely fill each pocket. When the pocket or receptacle having thus been filled is placed in the solution, the material of the plate by absorption swells considerably, so as to place the material under pressure against the walls of the pocket, which pressure is always present in operation, to thereby afford a good contact between the active material and the pocket and also internally between the particles of active material.

In the manufacture of the oxidizable element, iron sulphide is preferably first finely ground and then mixed with flake graphite, the whole being slightly moistened with strong caustic potash, and the mass thus formed is compressed under great pressure into plates of the desired size and inserted in the pockets or receptacles.

While I prefer to make use of nickel or cobalt as the oxygen-storing element and of iron as the oxidizable element of the storage battery, it will be understood that other active materials suitable for the purpose may be first compressed into plates or blocks and inserted in position

in perforated pockets or receptacles in manufacture.

In order that the improvement may be better understood, attention is directed to the accompanying drawings, forming part of this specification, and in which figure 1 is an elevation, partly in section, of a battery plate having three pockets or receptacles therein, as I describe in my said application, and figure 2 a separate perspective view of one of the molded or compressed blocks of active material.

In figure 1, the plate is made of thin nickel sheets, numerous perforated and bent around a bottom frame a to form parallel walls b and c. The plate is secured also to vertical frames d by means of nickel rivets, whereby a series of vertically long, narrow pockets will be formed between said vertical frames. Into these pockets are inserted blocks e of active material compressed under very heavy pressure as explained, and which by immersion in the solution are caused to swell so as to tightly engage the walls of the pockets.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is as follows:-

1. In a storage battery, an active material formed into compressed plates or blocks and inserted in perforated pockets or receptacles, substantially as set forth.
2. In a storage battery, nickel or cobalt compounds formed into compressed blocks or plates and inserted in perforated pockets or receptacles, substantially as set forth.
3. In a storage battery, an active element mixed with graphite and formed into compressed plates or blocks inserted into perforated pockets or receptacles, substantially as set forth.

4. In a storage battery, an active element comprising nickel or cobalt compounds and flake graphite, formed into compressed plates or blocks and inserted in perforated pockets or receptacles, substantially as set forth.

5. In a storage battery, an active element comprising an iron compound formed into compressed plates or blocks and inserted in a perforated pocket or receptacle, substantially as set forth.

6. In a storage battery, an active material comprising a mixture of an iron compound and flake graphite formed into compressed plates or blocks and inserted in a perforated pocket or receptacle, substantially as set forth.

THIS SPECIFICATION SIGNED AND WITNESSED THIS

DAY OF

190

Witnesses:

1. _____

2. _____

Oath.

State of

County of

} ss.:

THOMAS A. EDISON, THE ABOVE-NAMED
PETITIONER, BEING DULY SWORN, DEPOSES AND SAYS THAT HE IS A citizen
OF THE United States and a resident of Llewellyn Park, in the
County of Essex and State of New Jersey;
THAT HE VERILY BELIEVES HIMSELF TO BE THE ORIGINAL, FIRST AND SOLE INVENTOR
OF THE IMPROVEMENT IN STORAGE BATTERIES

DESCRIBED AND CLAIMED IN THE ANNEXED SPECIFICATION; THAT HE DOES NOT
KNOW AND DOES NOT BELIEVE THAT THE SAME WAS EVER KNOWN OR USED BEFORE
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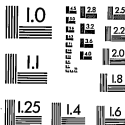
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